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ABSTRACT

This document presents descriptions of the content that has been identified as essential for all Kentucky students to know and will be included on the state assessment, the Kentucky Instructional Results Information System (KIRIS). The core content in this document is designed to be used with, not instead of, the expectations outlined in "Kentucky's Academic Expectations" to provide the focus for the development of the KIRIS. The designated core content will be addressed directly in multiple-choice items and will provide the context for open response items. However, the core content is not a set of curriculum standards, and it does not reflect a state curriculum. It does represent a progression of learning, so that students are expected to know the content at an identified level and all that precedes that level. From 1996-97 through 1999-2000 the KIRIS will be administered at the following grade levels for the academic areas specified: (1) grades 4, 7, and 11--reading, science, writing on-demand, and writing portfolios; (2) grades 5, 8, and 11--mathematics, social studies, arts and humanities, and practical living/vocational studies; and (3) grade 12--writing portfolios. A section describes the content for each of these areas and summarizes it by grade level. (SLD)

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for Assessment

Version 1.0

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INTRODUCTION TO CORE CONTENT FOR ASSESSMENT

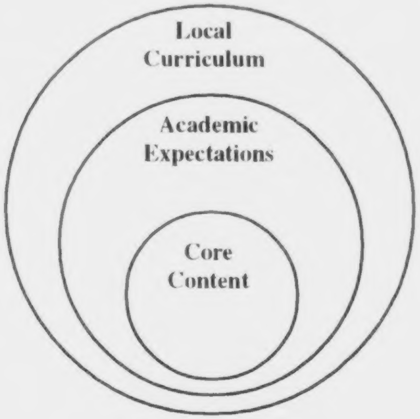
WHAT IS CORE CONTENT?

The core content document represents the content that has been identified as essential for all students to know and will be included on the state assessment. **This content is designed for use with,** not instead of, **Kentucky's Academic Expectations** to provide the focus for the development of the Kentucky Instructional Results Information System (KIRIS). The core content and academic expectations provide parameters for test developers as they design the assessments, including multiple choice, open response, and both on-demand writing and writing portfolios. The core content will be directly assessed in multiple choice items, and it will provide the context for open response items in which students are asked to apply knowledge and skills.

While it is the intent that the core content and academic expectations will provide the focus for all assessment items, a few questions which were developed prior to the identification of core content may remain on the KIRIS assessment for a short time. This is due to equating issues in which a percentage of the same items must be included in the assessment for comparison from year to year. However, these items will be marked for removal at the earliest possible time.

HOW DOES CORE CONTENT RELATE TO LOCAL CURRICULUM? TO OTHER DOCUMENTS?

The core content is not intended to be curriculum standards, and it does not reflect a state curriculum. However, the core content and academic expectations do provide direction for curricular focus at the local level. The Venn diagram below reflects the general relationship among core content, academic expectations, and local curriculum. It is not intended to be drawn to scale and, thus, is not an exact representation of the amount of time and emphasis the core content should represent in the local curriculum.



Curricular Implications

The **LOCAL CURRICULUM** is represented as the largest figure in the graphic because it includes both academic expectations and core content. However, the figures vary in size because local curriculum should address areas beyond both core content and academic expectations. For example, school or district curriculum should address national standards, identified community topics, and other content/skills/performances which the state assessment cannot address.

The **ACADEMIC EXPECTATIONS** give details to Kentucky's Six Learning Goals by clarifying what Kentucky citizens expect students to know and be able to do. These represent the next largest figure because the academic expectations are to provide a major focus for both state assessment and local curriculum. However, there are academic expectations which should be part of the local curriculum but are not part of the state assessment program. For example, none of Goal 3 - Self-Sufficiency or Goal 4 - Group Membership and some of the academic expectations under Goal 1 - Basic Communication and Mathematics Skills (e.g., listening skills) and Goal 2 - Core Concepts and Principles (e.g., foreign languages) are not currently assessed through KIRIS. However, all of these should be part of local curriculum and instruction.

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Transformations: Kentucky's Curriculum Framework is based upon the learning goals and academic expectations, and it uses "demonstrators" as benchmarks to indicate student progress toward the academic expectations. This document has been used by test developers to further identify areas for assessment, and it provides local schools and districts with additional guidance as they develop local curriculum and assessment.

The **CORE CONTENT**, as described earlier, represents the identified content that will be used to develop the KIRIS questions. As the graphic on the previous page reflects, this content is related to the academic expectations and should be part of the local curriculum. However, it is not intended to limit that curriculum. Classroom teachers will find it useful as a resource in designing instructional programs which prepare students for the state assessment.

There are two points which are important to emphasize. First, since the documents reflect a progression of learning, students are expected to know not only the content at the identified levels, but also all that precedes that level. We want students to retain learning and expand their understanding of a topic, not abandon it after formal assessment. Second, while assessment occurs at certain grade levels, all teachers prior to and including that grade level are responsible for instruction. Thus, these documents are for use by all teachers within the school in designing curriculum.

WHAT WAS THE BASIS FOR CORE CONTENT?

The core content document has its origins in the academic expectations and content guidelines and, therefore, reflects those documents. Other sources which were consulted in the development include national standards documents for the various subject areas; standards from the National Assessment of Educational Progress (NAEP) and the New Standards Project; information from Goals 2000; content guidelines from other states; and descriptors from the Kentucky Early Learning Profile (KELP). While the core content statements reflect these documents, they should be viewed as selected subsets which Kentucky educators identified as essential for state assessment. Final decisions were based on professional defensibility and input from the field.

WHAT PROCESS WAS USED TO DEVELOP AND GATHER INPUT ON CORE CONTENT?

The development of core content has been a multi-year project which directly involved hundreds of Kentucky's teachers, administrators, parents, and community members in the process and reflected the input of thousands of Kentuckians. Not only were several committees involved in the actual development and revision of the various subject area documents; but also multiple groups and individuals were involved in the review of the statements and documents.

From the beginning, a process was used which included group development, public review, and revision based upon those reviews. The total documents have been distributed for mass review three times during the past two years, and small group review sessions were held many times during the development cycle. Throughout the process, input was gathered and deliberate decisions were made to identify content which was considered essential for students to know and, thus, to be reflected on the state assessment.

WHAT FORMAT IS USED FOR COMMUNICATING THE CORE CONTENT?

All program areas have used a format that shows a progression of core content on the same page across elementary, middle, and high school levels. This was done for a variety of reasons. First, it offers guidance in the development of local curriculum by providing an easy visual representation of concept development. Fewer overlaps and gaps result when designers are aware of how concepts develop, and input from teachers indicated that this format would be helpful. Second, it offers a view of how a concept is developed from a more concrete level at elementary school to a higher level of complexity at high school. Third, it helps teachers' awareness of the content that leads to and/or follows the content assessed at a particular level.

Additionally, mathematics, reading, and science content are presented in a second format design that lists together all the content/skills for a grade level — elementary, middle, or high school. This was done to provide teachers with an easy reference for classroom instruction. These charts are found in the respective subject documents following the first charts in sections entitled "Level Specific Core Content."

Each chart indicates both the school level for instruction and the grade at which that specific content will be assessed. This emphasizes the viewpoint that while assessment occurs at a specific grade level, all teachers within the school are responsible for instruction.
For 1996/97 - 1999/2000, KIRIS will be administered in the following content areas at the identified grade levels:

4th, 7th, 11th Grades	5th, 8th, 11th Grades	12th Grade
Reading	Mathematics	Writing Portfolios
Science	Social Studies	
Writing On-Demand &	Arts & Humanities	
Writing Portfolios	Practical Living/Vocational Studies	

The use of examples (e.g., ...) in the charts is intended to help clarify what is expected and to provide teachers with examples of what is intended for specific content.

WHAT ARE THE PLANS TO REVISE CORE CONTENT?

The core content document will be scheduled for revision based on identified needs, and a regular review cycle will be established. Schools and districts will be provided with advance notice of those review/revision schedules.

The Division of Curriculum and Assessment Development plans to adopt the labeling format used by software producers to assist in identifying possible revisions. For example, this version has been titled Version 1.0. When slight changes, such as word clarifications, are made, the resulting document will be labeled Version 1.1. A version which reflects major content changes will be labeled 2.0. These version labels will be included on the cover, divider pages, and as a footer on all chart pages. This will, hopefully, assist all users in maintaining a current copy.

WHAT SHOULD BE DONE WITH OTHER VERSIONS OF CORE CONTENT AND CONTENT GUIDELINES?

This core content document, labeled Version 1.0, will be used by test developers to construct future KIRIS items, and **it replaces all earlier content guidelines and core content documents for that purpose.**

Continued use of the content guidelines documents is a local decision. While schools or districts may choose to use content guidelines as checks in local curriculum development, they will not be used as part of assessment development at the state level.

HOW CAN ADDITIONAL COPIES OF THE CORE CONTENT BE OBTAINED?

Print copies can be obtained from Communication Services, Kentucky Department of Education, 19th Floor, 500 Mero Street, Frankfort, Kentucky 40601 or call (502) 564-2000.

The document will be available on KDE's Web Page at http://www.kde.state.ky.us

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Core Content for Reading Assessment

Version 1.0

Core Content/Skills for Reading Assessment

Academic Expectation 1.2: Students make sense of the variety of materials they read.

The ability to read well is vital to every curricular area. Students who lack proficiency in reading will find it difficult to experience success in school and life. In an age of complex communications, reading to acquire information is necessary but not sufficient. It is crucial that students learn to interpret, evaluate, and synthesize what they read. The different types of reading materials which students encounter is the focus of the state assessment. This core content will be used as the assessment is developed. (Percentages following each type of reading refer to the percentage of that type included on the KIRIS Assessment.)

Elementary (Assessment at Grade 4)	Middle Level (Assessment at Grade 7)	High School (Assessment at Grade 11)
Informational Reading includes a variety of selections such as excerpts from scientific journals, cultural and news magazines, and newspaper articles. Informational reading requires the application of unique techniques and strategies in order to interpret text effectively. (25%)	***Informational Reading*** includes a variety of selections such as excerpts from scientific journals, cultural and news magazines, and newspaper articles. Informational reading requires the application of unique techniques and strategies in order to interpret text effectively. (25%)	***Informational Reading*** includes a variety of selections such as excerpts from scientific journals, cultural and news magazines, and newspaper articles. Informational reading requires the application of unique techniques and strategies in order to interpret text effectively. (30%)
• Use pictures, lists, tables, charts, graphs, tables of contents, indexes, glossaries, headings, and captions to more completely understand the passage.	• Use pictures, lists, tables, charts, graphs, tables of contents, indexes, glossaries, and chapter headings to more completely understand the passage.	• Use illustrations, charts, lists, tables, graphs, tables of contents, indexes, glossaries, headings, and captions to add to the reader's understanding of the text.
• Identify how the passage is organized: sequence, cause and effect, and/or comparison.	• Apply knowledge of organizational patterns: cause and effect, comparison, contrast, and/or sequence.	• Analyze the organizational patterns: cause and effect, compare and contrast, sequence, and generalizations.
• Identify main ideas and details which support them.	• Identify supporting details and identify their importance in a passage.	• Evaluate the use of supporting details as they relate to the author's message.
• Make predictions and draw conclusions based on what is read.	• Make predictions and draw conclusions based on a reading passage.	• Make predictions and draw conclusions based on what is read.
• Connect the content of the passage to real life and/or to current events.	• Summarize information from a passage.	• Critique the text based on the information presented.
	• Connect information from a passage to related topics, real life and/or current events.	• Analyze the content as it applies to real-life issues and current events.

Core Content/Skills for Reading Assessment

Elementary (Assessment at Grade 4)	Middle Level (Assessment at Grade 7)	High School (Assessment at Grade 11)
Literary Reading includes short stories, novels, essays, poetry, and plays. Literary reading has traditionally formed the foundation of reading and consists of a broad range of classical and modern texts. The passages represent both historical and cultural perspectives. (50%)	***Literary Reading*** includes short stories, novels, essays, poetry, and plays. Literary reading has traditionally formed the foundation of reading and consists of a broad range of classical and modern texts. The passages represent both historical and cultural perspectives. (40%)	***Literary Reading*** includes short stories, novels, essays, poetry, and plays. Literary reading has traditionally formed the foundation of reading and consists of a broad range of classical and modern texts. The passages represent both historical and cultural perspectives. (30%)
• Understand the meaning of a passage taken from texts recognized as appropriate for elementary school students.	• Identify the meaning of a passage taken from texts recognized as appropriate for middle level students.	• Interpret the meaning of a passage taken from texts recognized as appropriate for high school students.
• Know the differences among fiction, non-fiction, poetry, and plays.	• Identify characteristics of short stories, novels, poetry, and plays.	• Analyze the differences between genres.
• Describe characters, plot, setting, and conflict of a story.	• Describe characters, setting, conflict and resolution, theme, and point-of-view.	• Evaluate the influence of characters, setting, point-of-view, plot, and structure within a passage.
• Explain a character's actions based on the passage.	• Connect literature to real life.	• Analyze the effect of theme, conflict and resolution, symbolism, satire, irony, analogies, and metaphors.
• Connect literature to real life.	• Identify figurative language such as similies, metaphors, personification and hyperbole.	• Make connections among fiction, prior knowledge, real life and/or experiences.
	• Analyze the relationship between events in a story and a character's behavior.	• Interpret figurative, idiomatic, and symbolic language in a passage.
	• Explain how a conflict in a passage is resolved.	• Critique the author's word choice, style, content, and use of literary elements.
		• Explain how a conflict in a passage is resolved.

Core Content/Skills for Reading Assessment

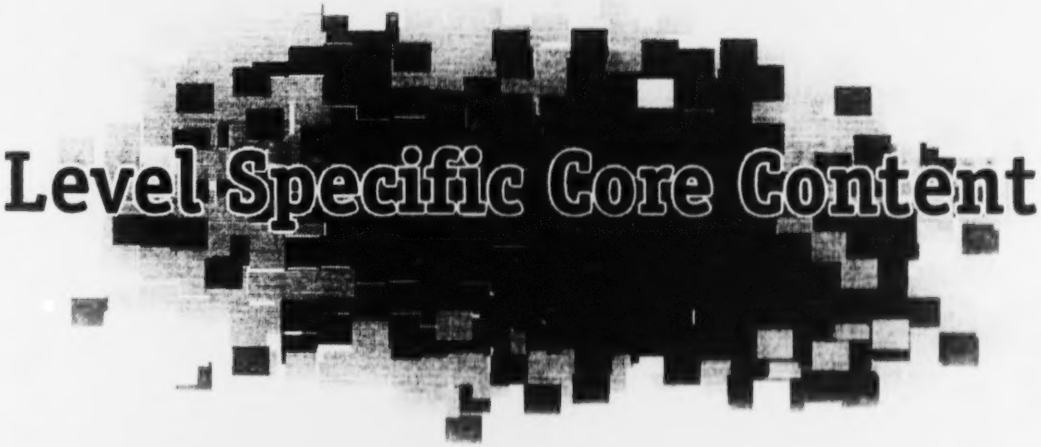
Elementary (Assessment at Grade 4)	Middle Level (Assessment at Grade 7)	High School (Assessment at Grade 11)
Persuasive Reading includes excerpts from speeches, editorials, and advertisements. In order for students to respond as critical thinkers, they must possess the skills which will allow them to distinguish between fact and opinion in reading materials. (10%)	***Persuasive Reading*** includes excerpts from speeches, editorials, and advertisements. In order for students to respond as critical thinkers, they must possess the skills which will allow them to distinguish between fact and opinion in reading materials. (15%)	***Persuasive Reading*** includes excerpts from speeches, editorials, and advertisements. In order for students to respond as critical thinkers, they must possess the skills which will allow them to distinguish between fact and opinion in reading materials. (20%)
• Identify the author's opinion about a subject. • Identify fact and opinion. • Identify information which is supported by fact.	• Identify the author's opinion about a subject. • Identify commonly used persuasive techniques. • Identify the argument and supporting evidence. • Distinguish between informative and persuasive passages. • Distinguish between fact and opinion. • Identify bias and/or misinformation.	• Identify the author's position based on evidence in the passage. • Recognize a variety of persuasive and propaganda techniques and explain how they are used. • Identify purposes of persuasion. • Accept or reject the argument giving supporting evidence. • Compare and contrast differing points of view in two or more passages. • Analyze and evaluate the use of persuasion within a passage. • Recognize the appropriateness of the argument for the intended audience.

Core Content/Skills for Reading Assessment

Elementary (Assessment at Grade 4)	Middle Level (Assessment at Grade 7)	High School (Assessment at Grade 11)
Practical/Workplace Reading may include excerpts from warranties, recipes, forms, memoranda, consumer texts, and "how-to" manuals. Students must possess the skills to interpret this data and follow instructions for everyday purposes. (15%)	***Practical/Workplace Reading*** may include excerpts from warranties, recipes, forms, memoranda, consumer texts, and "how-to" manuals. Students must possess the skills to interpret this data and follow instructions for everyday purposes. (20%)	***Practical/Workplace Reading*** may include excerpts from warranties, recipes, forms, memoranda, consumer texts, and "how-to" manuals. Students must possess the skills to interpret this data and follow instructions adequately for everyday purposes. (20%)
• Follow the directions in a passage. • Explain why the correct sequence of activities is important. • Interpret specialized vocabulary found in practical reading passages. • Identify information which provides additional clarity (bold-face print, italics, illustrations). • Locate and apply appropriate information.	• Apply the information contained in directions and forms. • Identify the sequence of activities needed to carry out a procedure. • Explain the relationship between organizational aids and/or graphics (pictures, charts, graphs) and the content of a practical reading passage. • Interpret the use of specialized words and terms. • Locate and apply information for a specific purpose.	• Apply the information contained in excerpts from "how-to" manuals and consumer texts. • Follow the sequence of information. • Utilize page format/layout (organizational aids and graphics) to interpret information. • Evaluate clarity of practical materials such as warranties, recipes, forms, memoranda, schedules and directions. • Interpret the meaning of specialized vocabulary found in practical reading passages. • Identify essential information in a passage needed to assemble or operate a tool, appliance, and technology hardware.

Core Content/Skills for Reading Assessment

Elementary (Assessment at Grade 4)	Middle Level (Assessment at Grade 7)	High School (Assessment at Grade 11)
Reading skills are the basic concepts underlying all types of passages and are necessary for students to understand reading materials. They are assessed through all passage types.	***Reading skills*** are the basic concepts underlying all types of passages and are necessary for students to understand reading materials. They are assessed through all passage types.	***Reading skills*** are the basic concepts underlying all types of passages and are necessary for students to understand reading materials. They are assessed through all passage types.
• Use word recognition strategies such as phonetic principles, context clues, and structural analysis to determine pronunciations and meanings of words in passages. • Know synonyms, antonyms, homonyms, and compound words for comprehension. • Know that some words have multiple meanings and identify the correct meaning as the word is used. • Recognize the meaning of a word when a prefix or suffix has been added to a base word. • Know why capitalization, punctuation, bold-face type, italics, and indentations are used by the author.	• Know the purposes for the four types of reading: information, literature, persuasion, and practical/workplace. • Scan to find key information. • Skim to get the gist of a passage. • Formulate questions to guide reading. • Draw conclusions and make generalizations about what is read. • Reflect on and evaluate what is read. • Know the meanings of common prefixes and suffixes in order to decode unfamiliar words. • Identify words which have multiple meanings and select appropriate meaning for the context. • Use knowledge of synonyms, antonyms, and homonyms for the purpose of comprehending the text.	• Make, confirm, and revise predictions. • Paraphrase important parts of a passage. • Formulate opinions in response to a reading passage. • Interpret literal and non-literal meanings. • Interpret concrete and abstract terms in meaningful context. • Identify ambiguous and contradictory statements in passages. • Interpret the meaning of jargon and/or dialect used in a passage.



Level Specific Core Content

Core Content/Skills for Reading Assessment

Academic Expectation 1.2: Students make sense of the variety of materials they read.

The ability to read well is vital to every curricular area. Students who lack proficiency in reading will find it difficult to experience success in school and life. In an age of complex communications, reading to acquire information is necessary but not sufficient. It is crucial that students learn to interpret, evaluate, and synthesize what they read. The different types of reading materials which students encounter is the focus of the state assessment. This core content will be used as the assessment is developed. (Percentages following each type of reading refer to the percentage of that type included on the KIRIS Assessment.)

Elementary School (Assessment at Grade 4)

INFORMATION (25%)	LITERATURE (50%)	PERSUASION (10%)	PRACTICAL/ WORKPLACE (15%)	READING SKILLS
Informational Reading includes a variety of selections such as excerpts from scientific journals, cultural and news magazines, and newspaper articles. Informational reading requires the application of unique techniques and strategies in order to interpret text effectively.	***Literary Reading*** includes short stories, novels, essays, poetry, and plays. Literary reading has traditionally formed the foundation of reading and consists of a broad range of classical and modern texts. The passages represent both historical and cultural perspectives.	***Persuasive Reading*** includes excerpts from speeches, editorials, and advertisements. In order for students to respond as critical thinkers, they must possess the skills which will allow them to distinguish between fact and opinion in reading materials.	***Practical/Workplace Reading*** includes excerpts from warranties, recipes, forms, memoranda, consumer texts, and "how-to" manuals. Students must possess the skills to interpret this data and follow instructions for everyday purposes.	***Reading skills*** are the basic concepts underlying all types of passages and are necessary for students to understand reading materials. They are assessed through all passage types.
• Use pictures, lists, tables, charts, graphs, tables of contents, indexes, glossaries, headings, and captions to more completely understand the passage.	• Understand the meaning of a passage taken from texts recognized as appropriate for elementary school students.	• Identify the author's opinion about a subject. • Identify fact and opinion.	• Follow the directions in a passage. • Explain why the correct sequence of activities is important.	• Use word recognition strategies such as phonetic principles, context clues, and structural analysis to determine pronunciations and meanings of words in passages.

Core Content/Skills for Reading Assessment

Elementary (Assessment at Grade 4)

INFORMATION (cont.)	LITERATURE (cont.)	PERSUASION (cont.)	PRACTICAL/ WORKPLACE (cont.)	READING SKILLS (cont.)
• Identify how the passage is organized: sequence, cause and effect, and/or comparison. • Identify main ideas and details which support them. • Make predictions and draw conclusions based on what is read. • Connect the content of the passage to real life and/or to current events.	• Know the differences among fiction, non-fiction, poetry, and plays. • Describe characters, plot, setting, and conflict of a story. • Explain a character's actions based on a passage. • Connect literature to real life.	• Identify information which is supported by fact.	• Interpret specialized vocabulary found in practical reading passages. • Identify information which provides additional clarity (bold-face print, italics, illustrations). • Locate and apply appropriate information.	• Know synonyms, antonyms, homonyms, and compound words for comprehension. • Know that some words have multiple meanings and identify the correct meaning as the word is used. • Recognize the meaning of a word when a prefix or suffix has been added to a base word. • Know why capitalization, punctuation, bold-face type, italics, and indentations are used by the author.

Core Content/Skills for Reading Assessment

Academic Expectation 1.2: Students make sense of the variety of materials they read.

The ability to read well is vital to every curricular area. Students who lack proficiency in reading will find success in school and life difficult. In an age of complex communications, reading to acquire information is necessary but not sufficient. It is crucial that students learn to interpret, evaluate, and synthesize what they read at an appropriate reading level. The different types of reading materials which students encounter is the focus of the state assessment. This core content will be used as the assessment is developed. (Percentages following each type of reading refer to the percentage of that type included on the KIRIS Assessment.)

Middle Level (Assessment at Grade 7)

INFORMATION (25%)	LITERATURE (40%)	PERSUASION (15%)	PRACTICAL/ WORKPLACE (20%)	READING SKILLS
Informational Reading includes a variety of selections such as excerpts from scientific journals, cultural and news magazines, and newspaper articles. Informational reading requires the application of unique techniques and strategies in order to interpret text effectively.	***Literary Reading*** includes short stories, novels, essays, poetry, and plays. Literary reading has traditionally formed the foundation of reading and consists of a broad range of classical and modern texts. The passages represent both historical and cultural perspectives.	***Persuasive Reading*** includes excerpts from speeches, editorials, and advertisements. In order for students to respond as critical thinkers, they must possess the skills which will allow them to distinguish between fact and opinion in reading materials.	***Practical/Workplace Reading*** includes excerpts from warranties, recipes, forms, memoranda, consumer texts, and "how-to" manuals. Students must possess the skills to interpret this data and follow instructions for everyday purposes.	***Reading skills*** are the basic concepts underlying all types of passages and are necessary for students to understand reading materials. They are assessed through all passage types.
• Use pictures, lists, tables, charts, graphs, tables of contents, indexes, glossaries, and chapter headings to more completely understand a passage.	• Identify the meaning of a passage taken from texts recognized as appropriate for middle level students.	• Identify the author's opinion about a subject. • Identify commonly used persuasive techniques.	• Apply the information contained in directions and forms. • Identify the sequence of activities needed to carry out a procedure.	• Know the purposes for the four types of reading: information, literature, persuasion, and practical/workplace.

Core Content/Skills for Reading Assessment

Middle Level (Assessment at Grade 7)

INFORMATION (cont.)	LITERATURE (cont.)	PERSUASION (cont.)	PRACTICAL/ WORKPLACE (cont.)	READING SKILLS (cont.)
• Apply knowledge of organizational patterns: cause and effect, comparison, contrast, and/or sequence. • Identify supporting details and identify their importance in a passage. • Make predictions and draw conclusions based on a reading passage. • Summarize information from a passage. • Connect information from a passage to related topics, real life and/or current events.	• Identify characteristics of short stories, novels, poetry, and plays. • Describe characters, setting, conflict and resolution, theme, and point-of-view. • Connect literature to real life. • Identify figurative language such as similes, metaphors, personification, and hyperbole. • Analyze the relationship between events in a story and a character's behavior. • Explain how a conflict in a passage is resolved.	• Identify the argument and supporting evidence. • Distinguish between informative and persuasive passages. • Distinguish between fact and opinion. • Identify bias and/or misinformation.	• Explain the relationship between organizational aids and/or graphics (pictures, charts, graphs) and the content of a practical reading passage. • Interpret the use of specialized words and terms. • Locate and apply information for a specific purpose.	• Scan to find key information. • Skim to get the gist of a passage. • Formulate questions to guide reading. • Draw conclusions and make generalizations about what is read. • Reflect on and evaluate what is read. • Know the meanings of common prefixes and suffixes in order to decode unfamiliar words. • Identify words which have multiple meanings and select appropriate meaning for the context. • Use knowledge of synonyms, antonyms, and homonyms for the purpose of comprehending the text.

Core Content/Skills for Reading Assessment

Academic Expectation 1.2: Students make sense of the variety of materials they read.

The ability to read well is vital to every curricular area. Students who lack proficiency in reading will find success in school and life difficult. In an age of complex communications, reading to acquire information is necessary but not sufficient. It is crucial that students learn to interpret, evaluate, and synthesize what they read at an appropriate reading level. The different types of reading materials which students encounter is the focus of the state assessment. This core content will be used as the assessment is developed. (Percentages following each type of reading refer to the percentage of that type included on the KIRIS Assessment.)

High School (Assessment at Grade 11)

INFORMATION (30%)	LITERATURE (30%)	PERSUASION (20%)	PRACTICAL/ WORKPLACE (20%)	READING SKILLS
Informational Reading includes a variety of selections such as excerpts from scientific journals, cultural and news magazines, and newspaper articles. Informational reading requires the application of unique techniques and strategies in order to interpret text effectively.	***Literary Reading*** includes short stories, novels, essays, poetry, and plays. Literary reading has traditionally formed the foundation of reading and consists of a broad range of classical and modern texts. The passages represent both historical and cultural perspectives.	***Persuasive Reading*** includes excerpts from speeches, editorials, and advertisements. In order for students to respond as critical thinkers, they must possess the skills which will allow them to distinguish between fact and opinion in reading materials.	***Practical Reading*** includes excerpts from warranties, recipes, forms, memoranda, consumer texts, and "how-to" manuals. Students must possess the skills to interpret this data and follow instructions for everyday purposes.	***Reading skills*** are the basic concepts underlying all types of passages and are necessary for students to understand reading materials. They are assessed through all passage types.
• Use illustrations, charts, lists, tables, graphs, tables of contents, indexes, glossaries, headings, and captions to add to the reader's understanding of the text.	• Interpret the meaning of a passage taken from texts recognized as appropriate for high school students. • Analyze the differences between genres.	• Identify the author's position based on evidence in the passage. • Recognize a variety of persuasive and propaganda techniques and explain how they are used.	• Apply the information contained in excerpts from "how-to" manuals and consumer texts. • Follow the sequence of information.	• Make, confirm, and revise predictions. • Paraphrase important parts of a passage. • Formulate opinions in response to a reading passage.

Core Content/Skills for Reading Assessment

High School (Assessment at Grade 11)

INFORMATION (cont.)	LITERATURE (cont.)	PERSUASION (cont.)	PRACTICAL/ WORKPLACE (cont.)	READING SKILLS (cont.)
• Analyze the organizational patterns: cause and effect, compare and contrast, sequence, and generalizations. • Evaluate the use of supporting details as they relate to the author's message. • Make predictions and draw conclusions based on what is read. • Critique the text based on the information presented. • Analyze the content as it applies to real-life issues and current events.	• Evaluate the influence of characters, setting, point-of-view, plot, and structure within a passage. • Analyze the effect of theme, conflict and resolution, symbolism, satire, irony, analogies, and metaphors. • Make connections among fiction, prior knowledge, real-life and/or experiences. • Interpret figurative, idiomatic, and symbolic language in a passage. • Critique the author's word choice, style, content, and use of literary elements. • Explain how a conflict in a passage is resolved.	• Identify purposes of persuasion. • Accept or reject the argument giving supporting evidence. • Compare and contrast differing points of view in two or more passages. • Analyze and evaluate the use of persuasion within a passage. • Recognize the appropriateness of the argument for the intended audience.	• Utilize page format/ layout (organizational aids and graphics) to interpret information. • Evaluate clarity of practical materials such as warranties, recipes, forms, memoranda, schedules, and directions. • Interpret the meaning of specialized vocabulary found in practical reading passages. • Identify essential information in a passage needed to assemble or operate a tool, appliance, and/or technology hardware.	• Interpret literal and non-literal meanings of words. • Interpret concrete and abstract terms in meaningful context. • Identify ambiguous and contradictory statements in passages. • Interpret the meaning of jargon and/or dialect used in a passage.

Core Content for Writing Assessment

Version 1.0

Core Content for Writing Assessment

Kentucky's writing tests are designed to evaluate student products to determine if students can apply specific writing criteria in the context of both the daily classroom and an on-demand situation. Students are expected to produce writing for various audiences (readers) and for various purposes across a range of forms. In Kentucky's state assessment students at various grades take two kinds of writing tests:

- an on-demand test (grades 4, 7, 11) in which the student responds to a prompt (writing assignment) and produces a piece of writing during a 90-minute session and
- a portfolio (grades 4, 7, and 12), which is a collection of six best pieces of writing that have been developed as a part of regular classroom instruction over a period of time.

These two kinds of tests are designed to provide information for schools about their writing programs.

Writing Criteria

Kentucky teachers use established qualities of good writing to teach and evaluate student writing. Altogether, these qualities, which are the scoring criteria, make up a set of high standards for Kentucky students. Purpose/Audience, Idea Development/Support, Organization, Sentences, Language, and Correctness make up the scoring criteria for Kentucky's writing assessment.

The Writing Portfolio

Students choose from their best writings produced in all of their classes over several months, or even previous school years, pieces for the writing portfolio part of the assessment. Kentucky educators established the writing portfolio content requirements to broaden the writing experiences of Kentucky's students. The portfolio requires three different kinds of writing: (1) writing in which the student focuses primarily on self and personal experiences; (2) writing in which the student creates fictional or poetic pieces; and (3) other types of writing which the student produces to accomplish specific purposes. The kinds of writing in the portfolio allow for and encourage a wide range of forms.

On-Demand Writing

The purpose of Kentucky's on-demand writing assessment is to determine if students can independently apply skills and knowledge of the writing criteria. Under supervision in a testing situation, students produce a single response to a prompt within a single, limited time frame. Prompts provide a context which includes an audience, purpose, and form for the piece of writing. The prompts are structured to elicit student writing which narrates an event, persuades, or responds to text, graphic, or chart.

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Level Specific Core Content

Core Content for Writing Assessment

Academic Expectation 1.11: Students write using appropriate forms, conventions, and styles to communicate ideas and informatior to different audiences for different purposes.

Elementary (Assessment at Grade 4)

Writing Criteria	Portfolio Content Requirements	On-Demand Requirements
Purpose/Audience--Students demonstrate a clear sense of the reason(s) for producing a piece of writing. They meet the needs of the reader, or audience, by focusing on the reason for the piece. Purpose and audience provide the foundation for the piece of writing as it progresses. *(As demonstrated in benchmarks and exemplar portfolio samples, elementary students may demonstrate a beginning sense of audience and purpose and may demonstrate a less controlled focus than expected from middle and high school students.)* **Idea Development/Support**--Students decide which idea(s) to develop and make the idea(s) clear to the reader. Students support the idea(s) by elaborating on them with details chosen because they are relevant. *(As demonstrated in benchmarks and exemplar portfolio samples, elementary writings may include topics and ideas that are less sophisticated and employ less in-depth elaboration than that expected at the middle and high school levels.)*	**Student includes a total of 6 pieces. (At least 1 piece must come from a study area other than English/language arts)** • Letter to the Reviewer *(Student must include one)* • Personal Expressive Writing(s) in the form of - Personal Narrative - focuses on one event in the life of the writer - Memoir - focuses on a person and the student's relationship with the person *(Student may choose to include 1 or 2)* • Imaginative Writing(s) in the form of - Short story - Poem - Script *(Student may choose to include 1 or 2)*	Student responds to prompt in specific form: • Letter • Article **Students and teachers refer to 4th grade Benchmark, "Turkey's Disguise," as an example which achieves the criteria for writing at the 4th grade level.**

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Core Content for Writing Assessment

Elementary (Assessment Grade 4)

Writing Criteria *(continued)*	**Portfolio Content Requirements** *(continued)*	
Organization--Students arrange ideas in a clear and logical manner. They join ideas in a smooth way that guides the reader through the piece of writing. (*As demonstrated in benchmarks and exemplar portfolio samples, elementary students may employ basically sequential organizational strategies.*) **Sentences**--Students compose sentences that are correct, as well as varied in length and structure. *(As demonstrated in benchmarks and exemplar portfolio samples, elementary students may employ fewer complex sentence structures than those found in middle and high school writing but still demonstrate correct and effective sentences.)* **Language**--Students use wording and language that demonstrate standard usage. They choose correct and effective words. *(As demonstrated in benchmarks and exemplar portfolio samples, elementary students may employ less sophisticated language than that seen at other levels but still demonstrate correct use of language.)* **Correctness**--Students spell correctly, use correct punctuation, and capitalize letters according to standard rules.	• A piece which presents/supports a position, tells about a problem, or informs. *(These selections may include forms such as letters, brochures, and articles, among other appropriate forms for these purposes.)** *(Student may choose to include 1 or 2)* **Students and teachers refer to the 4th grade Proficient Benchmark, "Turkey's Disguise," and Proficient Exemplar Portfolio, "Storm Damage," as examples which achieve the criteria for writing at the 4th grade level.**	

*See "1996-97 Update Pages for *Kentucky Writing Portfolio Teacher's Handbook*" to find information on additional forms a piece may take.

Core Content for Writing Assessment

Academic Expectation 1.11: Students write using appropriate forms, conventions, and styles to communicate ideas and information to different audiences for different purposes.

Middle Level (Assessment at Grade 7)

Writing Criteria	Portfolio Content Requirements	On-Demand Requirements
Purpose/Audience--Students demonstrate a clear sense of the reason(s) for producing a piece of writing. They meet the needs of the reader, or audience, by focusing on the reason for the piece. Purpose and audience provide the foundation for the piece of writing as it progresses. *(As demonstrated in benchmark portfolio samples, middle level students demonstrate a building sense of audience and purpose and a clear focus.)* **Idea Development/Support**--Students decide which idea(s) to develop and make the idea(s) clear to the reader. Students support the idea(s) by elaborating on them with details chosen because they are relevant. *(As demonstrated in benchmark portfolio samples, middle level students demonstrate a more in-depth understanding of necessary and appropriate support for ideas.)*	**Student includes a total of 6 pieces. (At least 1 piece must come from a study area other than English/language arts)** • Letter to the Reviewer *(Student must include one)* • Personal Expressive Writing(s) in the form of - Personal Narrative - focuses on one event in the life of the writer - Memoir - focuses on a person and the student's relationship with the person - *Vignette - captures a moment in time in the life of the writer and focuses on painting a picture with words* *(Student may choose to include 1 or 2)* • Imaginative Writing(s) in the form of - Short story - Poem - Script *(Student may choose to include 1 or 2)*	Student responds to prompt in specific form: • Letter • Article • *Editorial* **Students and teachers will refer to the appropriate benchmark which illustrates the criteria for writing at the 7th grade level.**

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Core Content for Writing Assessment

Middle Level (Assessment at Grade 7)

Writing Criteria (continued)	Portfolio Content Requirements (continued)	
Organization--Students arrange ideas in a clear and logical manner. They join ideas in a smooth way that guides the reader through the piece of writing. *(As demonstrated in benchmark portfolio samples, middle level pieces demonstrate a growing sophistication in organizational strategies which may include flashbacks and order of importance.)* **Sentences**--Students compose sentences that are correct, as well as varied in length and structure. *(As demonstrated in benchmark portfolio samples, middle level students demonstrate increased variety and sophistication in sentence structure. In addition, students demonstrate the ability to construct complete and correct sentences.)* **Language**--Students use wording and language that demonstrate standard usage. They choose correct and effective words. *(As demonstrated in benchmark portfolio samples, middle level students employ more precise and sophisticated language choices than expected of elementary students. Language choices are also effective and correct.)* **Correctness**--Students spell correctly, use correct punctuation, and capitalize letters according to standard rules.	• Writing which achieves one or more of a variety of purposes (*e.g., predict an outcome, defend a position, analyze a situation, draw a conclusion, create a model, or explain a process or concept*) (These selections may include forms such as letters, brochures, feature articles, and editorials, among other appropriate forms for these purposes.)* (*Student may choose to include 2 or 3*) **Students and teachers refer to 7th grade Proficient Benchmark Portfolio as an example which illustrates the criteria for writing at the 7th grade level.**	

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*See "1996-97 Update Pages for *Kentucky Writing Portfolio Teacher's Handbook*" to find information on additional forms a piece may take.

Core Content for Writing Assessment

Academic Expectation 1.11: Students write using appropriate forms, conventions, and styles to communicate ideas and information to different audiences for different purposes.

High School (Assessment Grade 11/12)

Writing Criteria	Portfolio Content Requirements	On-Demand Requirements
Purpose/Audience--Students demonstrate a clear sense of the reason(s) for producing a piece of writing. They meet the needs of the reader, or audience, by focusing on the reason for the piece. Purpose and audience provide the foundation for the piece of writing as it progresses. *(As demonstrated in benchmarks and exemplar portfolio samples, high school students demonstrate a mature sense of audience in writings that are solidly focused on a purpose.)* **Idea Development/Support**--Students decide which idea(s) to develop and make the idea(s) clear to the reader. Students support the idea(s) by elaborating on them with details chosen because they are relevant. *(As demonstrated in benchmarks and exemplar portfolio samples, high school students include solid and in-depth support for ideas.)*	**Student includes a total of 6 pieces. (At least 2 pieces must come from study areas other than English/language arts)** • Letter to the Reviewer *(Student must include one)* • Personal Expressive Writing in the form of - Personal Narrative - focuses on one event in the life of the writer - Memoir - focuses on a person and the student's relationship with the person - Vignette - captures a moment in time in the life of the writer and focuses on painting a picture with words - *Personal Essay - focuses on a central idea supported by a variety of incidents in the writer's life* *(Student must include one)* • Imaginative Writing in the form of - Short story - Poem - Script - *Play* *(Student must include one)*	Student responds to prompt in specific form: • Letter • Article • Editorial • *Speech* **Students and teachers refer to 11/12th grade Benchmark, "A Hero's Magic" as an example which achieves the criteria for writing at the 11/12th grade level.**

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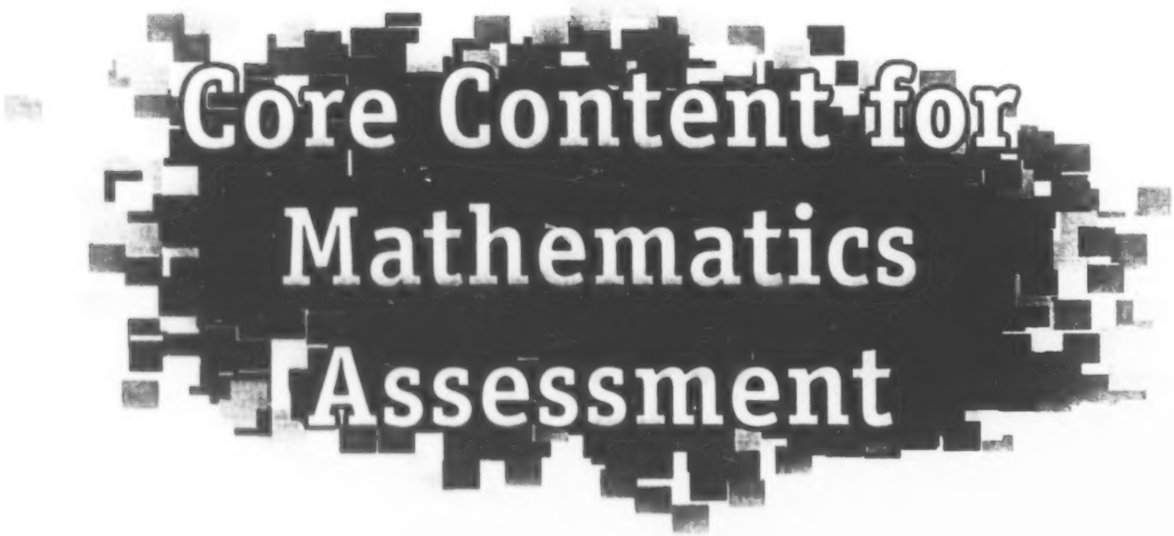
Core Content for Writing Assessment

High School (Assessment at Grade 11/12)

Writing Criteria (continued)	Portfolio Content Requirements (continued)	
Organization--Students arrange ideas in a clear and logical manner. They join ideas in a smooth way that guides the reader through the piece of writing. *(As demonstrated in benchmarks and exemplar portfolio samples, high school students demonstrate logical and increasingly sophisticated organizational strategies.)* **Sentences**--Students compose sentences that are correct, as well as varied in length and structure. *(As demonstrated in benchmarks and exemplar portfolio samples, high school students compose a variety of complex sentence structures appropriate and effective for the particular form of writing.)* **Language**--Students use wording and language that demonstrate standard usage. They choose correct and effective words. *(As demonstrated in benchmarks and exemplar portfolio samples, high school students employ effective and appropriately sophisticated language for the particular form of writing.)* **Correctness**--Students spell correctly, use correct punctuation, and capitalize letters according to standard rules.	• Writing which achieves one or more of a variety of purposes (*e.g., predict an outcome, defend a position, analyze a situation, draw a conclusion, create a model, or explain a process or concept*) (These selections may include forms such as letters, brochures, feature articles, editorials, proposals, and journal article, among other appropriate forms for these purposes.)* (*Student must include three*) **Students and teachers refer to the 12th grade Proficient Benchmark, "A Hero's Magic," and Proficient Exemplar Portfolio, "Questioning Santa," as examples which achieve the criteria for writing at the 12th grade level.** BEST COPY AVAILABLE	

*See "1996-97 Update Pages for *Kentucky Writing Portfolio Teacher's Handbook*" to find information on additional forms a piece may take.



Core Content for Mathematics Assessment

Version 1.0

Core Content for Mathematics Assessment

This document, Core Content for Mathematics Assessment, is designed to clarify and further define/refine the mathematics content outlined in *Kentucky's Learning Goals and Academic Expectations* and in *Transformations: Kentucky's Curriculum Framework.* The listings found here were derived from these two important documents. The mathematics content strands provide a foundation upon which meaningful experiences including **Mathematical Problem Solving, Communication, Reasoning, and Connections** will enable Kentucky students to develop mathematical power.

The mathematics content strands in this document are divided into three categories: **concepts, skills, and relationships**. All three categories of content are interrelated; they seldom appear in isolation in curriculum and assessment. They have been delineated to better communicate what students at assessment grade levels should know and be able to do with mathematics content.

Concepts are the mathematical ideas which serve as the basis for understanding mathematics. For students to understand concepts, they should be able to describe their properties, give examples of the concepts, describe them, and ultimately define the concepts. They should also be able to apply concepts to both real-life and mathematical situations.

Skills are the actions of mathematics. They describe what students should be able to do with their mathematical understanding. They almost always involve rules and procedures. For students to be skillful in mathematics, they must be able to perform the skills accurately and efficiently. They also must be able to explain how and why the skills work. Most importantly, students must be able to use the skills in both real-life and mathematical situations.

Relationships show how mathematical concepts and skills are connected; they form the structural basis for mathematics. Without relationships, mathematics would be simply a list of disconnected ideas. For a student to understand relationships, a student must not only understand the concepts and skills which form the relationships but also how the connections are made. To build these relationships, a student must be able to make generalizations about mathematics. Understanding relationships is critical if a student are to understand and use mathematics in meaningful ways.

The lists in this document are cumulative. All the concepts, skills, and relationships listed for elementary students also apply to middle school and high school students. The concepts, skills, and relationships listed for middle school students also supply to high school students. For this reason, teachers and parents of middle school students should become familiar with the elementary school and middle school lists. Teachers and parents of high school students should become familiar with all three lists.

This document, the Core Content for Mathematics Assessment, is meant to serve as a resource for teachers, administrators, and school councils as they select mathematics for their students. The core content is aligned with the standards of the National Council of Teachers of Mathematics (NCTM), the National Assessment of Educational Progress (NAEP), New Standards's performance standards, and Goals 2000. It provides guidelines for the Kentucky Department of Education in defining the mathematics content of the state assessment (KIRIS) and can be used as a benchmark for teachers and parents to assess the mathematics progress of their students.

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Core Content for Mathematics Assessment

HOW ACADEMIC EXPECTATIONS FIT INTO THE CORE CONTENT

The three academic expectations (AE)/core concepts, 2.8 Mathematical Procedures, 2.12 Mathematical Structure, and 2.11 Change permeate the content strands used in this document: 2.7 Number/Computation, 2.9 Geometry(Space and Dimensionality)/2.10 Measurement, 2.13 Probability/2.13 Statistics, and Algebra. Because these three academic expectations/core concepts are essential and integral parts of each strand of the mathematics core content, they are embedded and connected within the strands.

2.8 Mathematical Procedures involve repeated rules and formulas for finding and representing information. Procedures are necessary to solve a wide range of mathematical problems. Procedures can be done with numbers, geometric ideas and data.

Example: AE reads " use models and investigations to construct algorithms using rational numbers". It translates to core content statements: "add, subtract, multiply, and divide rational numbers (fractions, decimal, percents)" and "how applications of properties such as commutative, associative, distributive, and identities show relationships among numbers".

2.12 Mathematical Structure is the underlying foundation of mathematics and provides a rationale for doing mathematics. Structure serves to explain the relationships among mathematical concepts, procedures, skills, principles, rules, formulas, and laws.

Example: AE reads "analyze the structural characteristics of the real number system and various subsystems". It translates to core content statements: "the complex number system which includes counting numbers, whole numbers, rational numbers, real numbers, and imaginary numbers" and "how field properties such as identity, inverse, commutative, associative, and distributive show relationships among numbers and operations".

2.11 Change involves recognizing patterns, classifying and organizing information, and expressing these ideas mathematically. Change includes a focus on patterns involving numbers, shapes, designs, and events. Because mathematics is the "study of patterns," change provides a critical link to all core concepts.

Example: AE reads "extend and create patterns and generalize structures from patterns (e.g., square numbers, geometric patterns, patterns in nature in number sequences". It translates to core content statements: "find rules for patterns, extend patterns, and create patterns" and "how sequences (e.g., numbers, pictures, words) are alike and different".

CORE CONTENT STRANDS

Number and Computation: Numbers are basic elements of mathematics. Computation involves understanding what the operation means, when to use an operation, how to use algorithms and calculators to perform calculations, and checking computations with estimation techniques. Numbers are used to count, to measure, to order quantities, and to organize and understand the world.

Geometry and Measurement: Geometric concepts help students to visualize and describe the world in which they live. Measurement sense combines the selection of appropriate attributes, units and tools.

Probability and Statistics: Probability concepts involve uncertainty, experiments, simulations, and predicting outcomes.
Statistics and statistical concepts include collecting, organizing, reading, displaying, and analyzing information effectively.

Algebraic Ideas and Algebra Related Topics: The study of patterns, functions, and algebra enables students to recognize and analyze patterns, to recognize and analyze functional relationships, and to represent these relationships through combinations of symbols, graphs, words, tables, and charts.

Core Content for Mathematics Assessment

Number/Computation

	Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
Concepts	*Students should understand:* • whole numbers, fractions, and decimals • meaning of addition, subtraction, multiplication, and division • odd and even numbers, composite and prime numbers, multiples, factors • place value, number magnitude and other number relationships (e.g. ordering numbers, composing and decomposing numbers, multiple representations of numbers).	*Students should understand:* • rational numbers which include fractions, decimals, and percents • irrational numbers which include square roots and π (e.g., ordering on a number line) • integers • meaning of ratio and proportion • place value of large and small numbers (e.g., scientific notation) • exponents	*Students should understand:* • the complex number system which includes counting numbers, whole numbers, integers, rational numbers, irrational numbers, real numbers, and imaginary numbers • sequences, series (e.g., types, limits, terms) • significant digits, precision • matrices
Skills	*Students should be able to:* • add, subtract, multiply, and divide whole numbers using a variety of methods (mental, paper and pencil, calculator) • add and subtract simple fractions and simple decimals (fractions should be concrete rather than abstract) • count forward and backward and skip-count forward and backward • estimate quantities of objects and computational results	*Students should be able to:* • add, subtract, multiply, and divide rational numbers (fractions, decimals, percents) and integers • estimate large and small quantities and computational results • solve proportions • determine prime numbers, composite numbers, factors, multiples, greatest common factors, least common multiples	*Students should be able to:* • use operations on real numbers such as opposite, reciprocal, absolute value, power, root, logarithm, factorial • add, subtract, multiply, and divide complex numbers • use matrices to represent and/or solve practical problems • generate sequences and series; find sums of series • use numbers to describe combinations, permutations
Relationships	*Students should understand the following relationships:* • equivalence relationships between simple fractions, decimals, and whole numbers • how properties of addition, subtraction, multiplication, and division are used in computation (e.g., number sense: $24 + 9 = 24 + 10 - 1$) • how the base 10 number system relates to place value (e.g. ten ones makes one ten; ten hundredths make one tenth)	*Students should understand the following relationships:* • how whole numbers, rational numbers, irrational numbers, and integers relate to each other (e.g., magnitude) • how applications of properties such as commutative, associative, distributive, and identities show relationships among numbers • how addition, subtraction, multiplication, and division relate to each other (e.g., multiplication as repeated addition, subtraction as inverse of addition)	*Students should understand the following relationships:* • how numbers in the real number system relate to each other • how field properties such as identity, inverse, commutative, associative, and distributive show relationships among numbers and operations • equivalence and order relations • how ratio and proportion can be used to connect mathematical ideas

Core Content for Mathematics Assessment
Geometry/Measurement

	Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
Concepts	*Students should understand:* • basic geometric elements such as sides, edges, faces, vertices, and angles • basic two-dimensional shapes such as squares, triangles, rectangles, and circles • basic three-dimensional shapes such as spheres, cones, cylinders, and pyramids • symmetry, congruence • nonstandard and standard units of measurement, English and metric	*Students should understand:* • basic geometric elements which include segments, rays, and planes • two-dimensional shapes including circles, regular polygons, special quadrilaterials, and special triangles • common three-dimensional shapes • congruence and similarity • nonstandard, English, and metric units of measure	*Students should understand:* • algebraic transformations, transformations in geometric systems • spatial relationships such as betweenness, perpendicularity, and parallelism • the structure of standard measurement systems (English, metric) • ratio measures such as slope and rate • trigonometric measures (sine, cosine, tangent, degrees)
Skills	*Students should be able to:* • sort objects and compare attributes • use symmetry to construct geometric design • identify, draw, and sort basic two-dimensional shapes by appearance and in different orientations • identify and model basic three-dimensional shapes by appearance and in different orientations • use standard and nonstandard units to measure length, area, liquid capacity, volume, money, time, temperature, and weight • choose appropriate tools for specific measurement tasks • compare and order objects by weight, length, area, and capacity • identify measurable attributes, choose appropriate unit, make estimate, measure, compare estimate with measure	*Students should be able to:* • identify characteristics of two-dimensional and three- dimensional shapes • use appropriate tools and strategies to find measures of both regular and irregular shapes • move shapes in a plane: translate (slide), rotate (turn), reflect (flip) • estimate measurements in nonstandard and standard units • use formulas to find measurements of two-dimensional shapes	*Students should be able to:* • use transformations on figures and numbers • describe elements which change and elements which do not change under transformations • construct geometric figures using a variety of techniques (e.g., straightedge and compass, paper folding, three-dimensional models, MIRA) • use methods of indirect measurement (e.g., shadow method or mirror method for finding the height of a tree) • use Pythagorean Theorem
Relationships	*Students should understand the following relationships:* • how two-dimensional shapes are alike or different • how three-dimensional shapes are alike or different • how units within the same measurement system (English, metric) are related	*Students should understand the following relationships:* • how two or more measurements are related (perimeter and area, time and distance, height and weight, etc.) • how formulas for measurement of regular shapes relate to measurement of irregular shapes	*Students should understand the following relationships:* • how properties of geometric shapes relate to each other • how trigonometric ratios relate to right triangles • how algebraic procedures and geometric concepts are related • how position in the plane can be represented using rectangular coordinates

Core Content for Mathematics Assessment

Probability/Statistics

	Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
Concepts	*Students should understand:* • average (mean), median (middle value of a set of data), mode (largest category in a set of data), range (difference in largest and smallest data value) • probability (chance, likely and unlikely outcomes) • the process of using data to answer questions (e.g. pose a question, plan, collect data, organize and display data, interpret data to answer question)	*Students should understand:* • meaning of central tendency (mean, median, mode) • dispersion (range, cluster, gaps, and outliers) • randomness and independent events	*Students should understand:* • arithmetic and geometric means • dispersion (range, standard deviation, and variance) • curve fitting as a method of describing and predicting from a set of data or scatterplot • statistical models and probability simulations • counting techniques, permutations, and combinations
Skills	*Students should be able to:* • pose questions that can be answered by collecting data • collect, organize, and describe data (e.g., drawings, tables, charts) • construct and interpret displays of data (e.g., line graph, bar graph, pictograph) • make inferences and draw conclusions based on data • find average (mean) of sets of data • determine the fairness and possible outcomes of simple probability activities, using a variety of appropriate manipulatives	*Students should be able to:* • gather, organize, represent, analyze, and interpret large sets of data • construct and interpret displays of data (e.g., circle graph, line plot, stem-and-leaf plot, box-and-whiskers plot) • use sampling techniques to gather data about large populations • find mean, median, mode, range, outliers, gaps, and clusters of data • determine theoretical and experimental probabilities by designing and conducting experiments • make predictions and draw conclusions from statistical data and probability experiments • use counting techniques, tree diagrams, and tables to solve probability problems	*Students should be able to:* • compute arithmetic and geometric means • design and conduct experiments and interpret the results • select an appropriate curve to fit a set of data, determine the goodness of the fit, describe the measure of error, and predict other data based on the fitted curve • collect, organize, and display two-variable data • describe how sampling techniques can influence results
Relationships	*Students should understand the following relationships:* • how predictions can be based on data • how the type of display is related to data	*Students should understand the following relationships:* • how to compare data from various types of graphs • how to determine appropriateness of graphs • how to justify differences in theoretical probability and experimental probability • how sampling techniques affect interpretations and conclusions about data	*Students should understand the following relationships:* • how measures of dispersion and central tendency influence implications and conclusions • how to represent probabilities in multiple ways (e.g., fractions, percents, odds, areas)

Core Content for Mathematics Assessment

Algebraic Ideas

	Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
Concepts	*Students should understand:* • functions (input - output) through pictures, tables, and words • number sentences with missing values • a positive coordinate system of graphing	*Students should understand:* • variable, equation, inequality, algebraic expression • functions through pictures, tables, graphs, rules, and algebraic notation • rectangular (Cartesian) coordinate system/ grid • graphs of lines with tables	*Students should understand:* • variables and constants in expressions, equations, and inequalities • systems of equations and their representations • linear, quadratic, and exponential equations and functions
Skills	*Students should be able to:* • find rules for patterns, extend patterns, and create patterns • find solutions to number sentences with missing values (e.g. $7 + \square = 10$, $\square + 5 > 14$) • graph points on a number line • graph points on a positive coordinate system	*Students should be able to:* • simplify numerical and algebraic expressions • solve simple equations and inequalities • model equations and inequalities • use variables to describe numerical patterns • represent and use functions through tables, graphs, rules, and equations	*Students should be able to:* • solve and graph a variety of equations and inequalities • construct tables of numeric values of equations and inequalities • identify the characteristics of the graphs of functions: domain, intercepts, etc. • represent patterns using functions
Relationships	*Students should understand the following relationships:* • how sequences (e.g., numbers, pictures, words) are alike and different • how rules involving numbers and operations can be derived	*Students should understand the following relationships:* • how tables, graphs, rules, and equations relate to each other • how the change in one variable affects the change in another variable	*Students should understand the following relationships:* • how formulas, tables, graphs, words, and equations of functions relate to each other • how different parameters affect graphs of functions (e.g., compare the graph of $y = 3x^2$ to the graph $y = x^2$)

Level Specific Core Content

Core Content for Mathematics Assessment

What All Kentucky Students Should Know and Be Able to Do by the End of GRADE 5

	Number/Computation	Geometry/Measurement	Probability/Statistics	Algebraic Ideas
Concepts	*Students should understand:* • whole numbers, fractions, and decimals • meaning of addition, subtraction, multiplication, and division • odd and even numbers, composite and prime numbers, multiples, factors • place value, number magnitude and other number relationships (e.g. ordering numbers, composing and decomposing numbers, multiple representations of numbers).	*Students should understand:* • basic geometric elements such as sides, edges, faces, vertices, and angles • basic two-dimensional shapes such as squares, triangles, rectangles, and circles • basic three-dimensional shapes such as spheres, cones, cylinders, and pyramids • symmetry, congruence • nonstandard and standard units of measurement, English and metric	*Students should understand:* • average (mean), median (middle value of a set of data), mode (largest category in a set of data), range (difference in largest and smallest data value) • probability (chance, likely and unlikely outcomes) • the process of using data to answer questions (e.g. pose a question, plan, collect data, organize and display data, interpret data to answer question)	*Students should understand:* • functions (input - output) through pictures, tables, and words • number sentences with missing values • a positive coordinate system of graphing
Skills	*Students should be able to:* • add, subtract, multiply, and divide whole numbers using a variety of methods (mental, paper and pencil, calculator) • add and subtract simple fractions and simple decimals (fractions should be concrete rather than abstract) • count forward and backward and skip-count forward and backward • estimate quantities of objects and computational results	*Students should be able to:* • sort objects and compare attributes • use symmetry to construct geometric design • identify, draw, and sort basic two-dimensional shapes by appearance and in different orientations • identify and model basic three-dimensional shapes by appearance and in different orientations • use standard and nonstandard units to measure length, area, liquid capacity, volume, money,time, temperature, and weight • choose appropriate tools for specific measurement tasks • compare and order objects by weight, length, area, and capacity • identify measurable attributes, choose appropriate unit, make estimate, measure, compare estimate with measure	*Students should be able to:* • pose questions that can be answered by collecting data • collect, organize, and describe data (e.g., drawings, tables, charts) • construct and interpret displays of data (e.g., line graph, bar graph, pictograph) • make inferences and draw conclusions based on data • find average (mean) of sets of data • determine the fairness and possible outcomes of simple probability activities, using a variety of appropriate manipulatives	*Students should be able to:* • find rules for patterns, extend patterns, and create patterns • find solutions to number sentences with missing values (e.g. 7 + ☐ = 10, ☐ + 5 > 14) • graph points on a number line • graph points on a positive coordinate system
Relationships	*Students should understand the following relationships:* • equivalence relationships between simple fractions, decimals, and whole numbers • how properties of addition, subtraction, multiplication, and division are used in computation (e.g., number sense: 24 + 9 = 24 + 10 - 1) • how the base 10 number system relates to place value (e.g. ten ones makes one ten; ten hundredths make one tenth)	*Students should understand the following relationships:* • how two-dimensional shapes are alike or different • how three-dimensional shapes are alike or different • how units within the same measurement system (English, metric) are related	*Students should understand the following relationships:* • how predictions can be based on data • how the type of display is related to data	*Students should understand the following relationships:* • how sequences (e.g., numbers, pictures, words) are alike and different • how rules involving numbers and operations can be derived

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Core Content for Mathematics Assessment

What All Kentucky Students Should Know and Be Able to Do by the End of GRADE 8

	Number/Computation	Geometry/Measurement	Probability/Statistics	Algebraic Ideas
Concepts	*Students should understand:* • rational numbers which include fractions, decimals, and percents • irrational numbers which include square roots and π (e.g., ordering on a number lines) • integers • meaning of ratio and proportion • place value of large and small numbers (e.g., scientific notation) • exponents	*Students should understand:* • basic geometric elements which include segments, rays, and planes • two-dimensional shapes including circles, regular polygons, special quadrilaterials, and special triangles • common three-dimensional shapes • congruence and similarity • nonstandard, English, and metric units of measure	*Students should understand:* • meaning of central tendency (mean, median, mode) • dispersion (range, cluster, gaps, and outliers) • randomness and independent events	*Students should understand:* • variable, equation, inequality, algebraic expression • functions through pictures, tables, graphs, rules, and algebraic notation • rectangular (Cartesian) coordinate system/grid • graphs of lines with tables
Skills	*Students should be able to:* • add, subtract, multiply, and divide rational numbers (fractions, decimals, percents) and integers • estimate large and small quantities and computational results • solve proportions • determine prime numbers, composite numbers, factors, multiples, greatest common factors, least common multiples	*Students should be able to:* • identify characteristics of two-dimensional and three-dimensional shapes • use appropriate tools and strategies to find measures of both regular and irregular shapes • move shapes in a plane: translate (slide), rotate (turn), reflect (flip) • estimate measurements in nonstandard and standard units • use formulas to find measurements of two-dimensional shapes	*Students should be able to:* • gather, organize, represent, analyze, and interpret large sets of data • construct and interpret displays of data (e.g., circle graph, line plot, stem-and-leaf plot, box-and-whiskers plot) • use sampling techniques to gather data about large populations • find mean, median, mode, range, outliers, gaps, and clusters of data • determine theoretical and experimental probabilities by designing and conducting experiments • make predictions and draw conclusions from statistical data and probability experiments • use counting techniques, tree diagrams, and tables to solve probability problems	*Students should be able to:* • simplify numerical and algebraic expressions • solve simple equations and inequalities • model equations and inequalities • use variables to describe numerical patterns • represent and use functions through tables, graphs, rules, and equations
Relationships	*Students should understand the following relationships:* • how whole numbers, rational numbers, irrational numbers, and integers relate to each other (e.g., magnitude) • how applications of properties such as commutative, associative, distributive, and identities show relationships among numbers • how addition, subtraction, multiplication, and division relate to each other (e.g., multiplication as repeated addition, subtraction as inverse of addition)	*Students should understand the following relationships:* • how two or more measurements are related (perimeter and area, time and distance, height and weight, etc.) • how formulas for measurement of regular shapes relate to measurement of irregular shapes	*Students should understand the following relationships:* • how to compare data from various types of graphs • how to determine appropriateness of graphs • how to justify differences in theoretical probability and experimental probability • how sampling techniques affect interpretations and conclusions about data	*Students should understand the following relationships:* • how tables, graphs, rules, and equations relate to each other • how the change in one variable affects the change in another variable

Core Content for Mathematics Assessment

What All Kentucky Students Should Know and Be Able to Do by the End of GRADE 11

	Number/Computation	Geometry/Measurement	Probability/Statistics	Algebra/Related Topics
Concepts	*Students should understand:* • the complex number system which includes counting numbers, whole numbers, integers, rational numbers, irrational numbers, real numbers, and imaginary numbers • sequences, series (e.g., types, limits, terms) • significant digits, precision • matrices	*Students should understand:* • algebraic transformations, transformations in geometric systems • spatial relationships such as betweenness, perpendicularity, and parallelism • the structure of standard measurement systems (English, metric) • ratio measures such as slope and rate • trigonometric measures (sine, cosine, tangent, degrees)	*Students should understand:* • arithmetic and geometric means • dispersion (range, standard deviation, and variance) • curve fitting as a method of describing and predicting from a set of data or scatterplot • statistical models and probability simulations • counting techniques, permutations, and combinations	*Students should understand:* • variables and constants in expressions, equations, and inequalities • systems of equations and their representations • linear, quadratic, and exponential equations and functions
Skills	*Students should be able to:* • use operations on real numbers such as opposite, reciprocal, absolute value, power, root, logarithm, factorial • add, subtract, multiply, and divide complex numbers • use matrices to represent and/or solve practical problems • generate sequences and series; find sums of series • use numbers to describe combinations, permutations	*Students should be able to:* • use transformations on figures and numbers • describe elements which change and elements which do not change under transformations • construct geometric figures using a variety of techniques (e.g., straightedge and compass, paper folding, three-dimensional models, MIRA) • use methods of indirect measurement (e.g., shadow method or mirror method for finding the height of a tree) • use Pythagorean Theorem	*Students should be able to:* • compute arithmetic and geometric means • design and conduct experiments and interpret the results • select an appropriate curve to fit a set of data, determine the goodness of the fit, describe the measure of error, and predict other data based on the fitted curve • collect, organize, and display two-variable data • describe how sampling techniques can influence results	*Students should be able to:* • solve and graph a variety of equations and inequalities • construct tables of numeric values of equations and inequalities • identify the characteristics of the graphs of functions (e.g., domain, range, intercepts) • represent patterns using functions
Relationships	*Students should understand the following relationships:* • how numbers in the real number system relate to each other • how field properties such as identity, inverse, commutative, associative, and distributive show relationships among numbers and operations • equivalence and order relations • how ratio and proportion can be used to connect mathematical ideas	*Students should understand the following relationships:* • how properties of geometric shapes relate to each other • how trigonometric ratios relate to right triangles • how algebraic procedures and geometric concepts are related • how position in the plane can be represented using rectangular coordinates	*Students should understand the following relationships:* • how measures of dispersion and central tendency influence implications and conclusions • how to represent probabilities in multiple ways (e.g., fractions, percents, odds, areas)	*Students should understand the following relationships:* • how formulas, tables, graphs, words, and equations of functions relate to each other • how different parameters affect graphs of functions (e.g., compare the graph of $y = 3x^2$ to the graph $y =$ [illegible]^2)

Core Content for Science Assessment

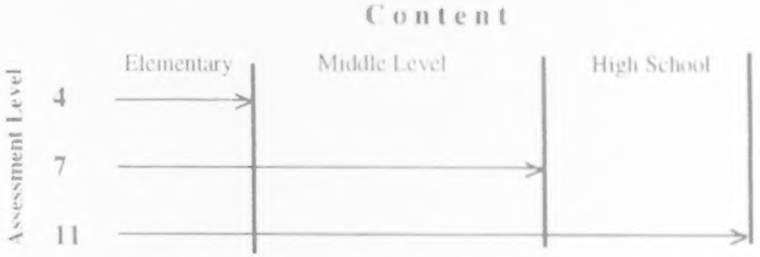
Version 1.0

Core Content for Science Assessment
Introduction

The Core Content for Science Assessment is organized to identify content and its connections to Academic Expectations 2.1: The Nature of Scientific Activity, 2.2: Patterns, 2.3: Systems and Interactions, 2.4: Models and Scale, 2.5: Constancy, and 2.6: Change Over Time. Additionally, it establishes the relationship between Inquiry, including Academic Expectation 2.1: The Nature of Scientific Activity, and the discipline information of the natural sciences.

Two series of organizational charts are included on the following pages. The first set is intended to show how concepts within a discipline (Physical, Life, and Earth and Space Sciences) are linked across the assessment grade levels. Each discipline is introduced by a narrative that established the fundamental relationships among the core concepts of the discipline. This introduction to the discipline is followed by a chart listing the categories across the assessment grade levels. The second set identifies the core science content for each assessment grade level (4, 7, and 11) and provides more specific content information. There is a clarification of what students should know about specific content and what they should be able to do with it. This clarification is written in the "Connections to Academic Expectations" and is based on the demonstrators of the identified academic expectations. These clarifications will also guide the development of assessment items for that level.

It is important to remember that the assessments are cumulative. Students at Grade 7 are responsible for the content at both the elementary and middle levels; high school students are responsible for all levels of content.



Each of the assessment level sections contains several components. The first component is a short explanation of Inquiry and Academic Expectation 2.1: The Nature of Scientific Activity, as it relates to that specific assessment grade level. The second component is a section on Physical Science. It contains a brief introduction to the concepts of Physical Science as they relate to that specific grade level. This introduction is followed by several categories of content statements and their identified connections to the academic expectations for Science. These connections are based on specific academic expectations and the appropriate demonstrators. The third and fourth components address Life Science and Earth and Space Sciences, respectively, and follow the same format as Physical Science.

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Core Content for Science Assessment

Science Inquiry Across the Assessment Levels

The KIRIS assessments have continued to emphasize that inquiry is vital to science. The adoption of this philosophy has broad implications for curriculum and instruction as well as assessment. The following paragraphs describe the attributes of inquiry that are most appropriate for Kentucky's assessment system. More information is available through *Transformations: Kentucky's Curriculum Framework*; **Academic Expectation 2.1: The Nature of Scientific Activity**; The National Science Education Standards (National Research Council, 1995); and Benchmarks for Science Literacy (American Association for the Advancement of Science, 1993).

The following list identifies science skills associated with inquiry. Even though they appear here as a simple list, they are embedded throughout the demonstrators of Academic Expectation 2.1 and will be used in the development of assessment items at all levels and across all disciplines.

Science Process Skills

- Observing
- Classifying
- Communicating
- Measuring
- Predicting
- Inferring
- Identifying and Controlling Variables
- Gathering, Organizing, and Processing Data
- Constructing Appropriate Data Tables and Graphs
- Analyzing
- Formulating Hypotheses
- Designing Investigations and Experiments

Scientific habits of mind represent basic attitudes accepted among the scientific community as fundamental for the integrity of research and communication. Assessment items may require students to analyze the design of an experiment or investigation and whether or not the study is valid based on these criteria. In the assessment items, students will be asked to not only **use the process** of inquiry, but also to **answer questions about the process.**

- Objectivity and impartiality of the experimenter and whether the processes are as free of subjectivity as possible
- Honesty of the observations, data, and interpretations and whether the experimenter reported actual observations, not inferences
- Judgments and conclusions are made based on credible evidence and logical arguments.

Core Content for Science Assessment

Science Inquiry Across the Assessment Levels (continued)

Critical Response Skills are used to analyze and evaluate information to determine its validity.

- Selecting the best way to solve a problem
- Evaluating the reasonableness of an interpretation of specific data
- Recognizing capabilities and limitations of technology
- Being aware of personal bias in reasoning
- Supporting ideas with evidence
- Supporting statements with research

Manipulative Skills are used in selecting and using tools which enable students to extend their senses and understandings.

- Using appropriate tools, units, and observations for a specific task
- Recording qualitative and quantitative observations
- Applying technology when and where appropriate
- Locating information in reference sources

Communication Skills are used in both gathering information and sharing it.

- Representing ideas concretely, graphically, and symbolically
- Interpreting graphs and tables
- Expressing estimated quantities
- Describing and comparing things
- Writing instructions for others to use
- Using numerical data with appropriate units
- Making and using scale drawings
- Restating or summarizing; elaborating or clarifying; and expressing alternatives

Skills and habits of mind are tools students use as they investigate science concepts through inquiry. Just as decisions are made about the developmental appropriateness of the breadth and depth of selected content, similar decisions are made regarding skills. **Sometimes, it is not just a matter of whether or not students could or should use the skill, but to what level of sophistication.** Thus, as KIRIS items are developed using the Core Content for Science Assessment, attention will be paid to the developmentally appropriate level of application for skills as well as content.

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Core Content for Science Assessment

PHYSICAL SCIENCE ACROSS THE GRADE LEVELS

In Physical Science, concepts grow from two fundamental components - matter and energy. Not only is it important for students to be able to describe matter and energy as separate entities, they also need to understand how matter and energy are related - function as well as structure. These two concepts, as fundamental as they are to an understanding of our surroundings, are both rather abstract in their full understanding. Therefore, it is especially important that many concrete experiences be provided for students at all levels. It is also important that connections be made between the "hands-on" portion of the experience and the "minds-on portion" of the concepts' development. Ways to collect evidence of the connections are shown throughout the demonstrators of the Academic Expectations.

Elementary students begin by making observations and taking measurements of objects and materials closest to them. They can ask, "What does it look like? How big is it? How much does it weigh? How much bigger/heavier/closer is it than the other object?" The concepts then develop around how matter moves and changes and how those motions and changes can be observed and measured. Elementary students' examinations of energy are in terms of how that energy is manifested as light, heat, electricity, and magnetism.

Middle level students examine the more complex changes matter undergoes and how different elements combine to form new substances. Their study of how matter moves enlarges to include how forces act on matter and how motions and forces can be measured. Their study of energy progresses from being able to identify simple forms of energy to understanding how energy is transferred from one form to another.

High school students build on their more concrete experiences at elementary and middle level by moving to the more abstract concepts related to matter and energy. They study the evolution of models of atomic structure, analyze the forces holding atoms together, and collect evidence of energy levels and changes during chemical reactions. High school students also should understand at a more complex level how matter, forces, motion, and energy are interrelated.

Core Content for Science Assessment

Physical Science

Elementary (Assessment at Grade 4)	Middle Level (Assessment at Grade 7)	High School (Assessment at Grade 11)
Properties of Objects and Materials * Observable, measurable properties of objects * Separating and classifying by properties * States of matter	**Properties and Changes in Properties of Matter** * Chemical and physical properties of matter * Chemical reactions * Compounds	**The Structure of Atoms** * Particulate nature of matter * Nuclear structure and forces * Fission and fusion
		Structure and Properties of Matter * Chemical properties of elements * Classification of elements * Types of bonds * Physical properties of compounds
		Chemical Reactions * Chemical reactions and energy * Important reactions * Reaction rates
Positions and Motions of Objects * Relative position * Observing and measuring change in position and/or motion * Amount of change related to strength of push or pull * Sound as a manifestation of motion	**Motions and Forces** * Describing motion * Inertia * Changing speed or direction * Waves	**Motions and Forces** * Laws of Motion * Gravity * Electric force * Electromagnetic force
Forms of Energy * Light * Heat * Electricity * Magnetism	**Transfer of Energy** * Energy as a property * Predictability of heat * Light's interaction with matter * Electrical circuits and energy transfer	**Conservation of Energy and the Increase in Disorder** * Law of Conservation * Kinetic and potential energy; energy fields * Heat and temperature * Fission and fusion * Entropy
		Interactions of Matter and Energy * Waves * Electromagnetic waves * Energy loss and gain * Conductors and insulators

Core Content for Science Assessment

LIFE SCIENCE ACROSS THE GRADE LEVELS

In the Biological Sciences, a temptation exists to assess students' knowledge of organisms on a level of great detail before addressing organisms on a larger scale. With relatively easy access to a wide variety of living things, students should begin by examining the organism as a whole, as a member of a species, and as a species in its niche in a particular environment. Close examination of an organism's internal structures is premature if students have not had an opportunity to develop an understanding of an organism's role in an ecosystem. Models are available or can be created by students to help establish an understanding of Life Science on both the micro- and macro-scale.

Elementary students begin their acquisition of knowledge with objects (organisms) most familiar to them and through direct experiences. They examine what an organism needs to survive and what structures it has to enable it to survive and thrive. Students compare various organisms and their life cycles to determine similarities and differences. They should be able to establish various patterns of similarities that enable the development of classification schemes. Elementary students also begin to examine the relationships that exist between and among organisms and their environments.

Middle level students examine the more complex organization of living systems from single-cell to multicellular organisms. They analyze how living systems sustain themselves by using resources, responding to stimuli, and reproducing. They also evaluate how organisms thrive, how they undergo changes in order to better survive as a species, and how they maintain their place in the ecosystem.

High school students begin to look into the cell itself and examine cellular structures and their related functions. A component of this examination of living systems is how genetic information is passed from one generation to the next and what can cause a change in that information. As students analyze organisms and how they cooperate and compete, they also investigate the feedback and self regulation of systems and how energy flows through the various levels of a living system.

Core Content for Science Assessment

Life Science

Elementary (Assessment at Grade 4)	Middle Level (Assessment at Grade 7)	High School (Assessment at Grade 11)
• **The Characteristics of Organisms** * Basic needs * Structures and functions * Similarities for classification	• **Structure and Function in Living Systems** * Relationship between structure and function * Single-celled, multicellular organisms * Cell functions that sustain life * Cell specialization	• **The Cell** * Structures and functions * Functions and chemical reactions * Genetic information that guides functions * Regulation of functions * Photosynthetic links * Cell differentiation and cooperation
	• **Regulation and Behavior** * Obtaining and using resources * Sensing and regulating internal environment * Change in response to stimuli * Behavior and adaptation	• **The Behavior of Organisms** * Nervous systems and behavior * Innate versus learned
• **Life Cycles of Organisms** * Differences in life cycles * Offspring resemble their parents	• **Reproduction and Heredity** * Continuation of species * Development of a new individual * Genetic information for new individuals	• **The Molecular Basis of Heredity** * DNA as genetic blueprint * Chromosomes and human heredity * Genetic mutations
	• **Diversity and Adaptation of Organisms** * Structural similarities * Adaptations for survival * Extinction	• **Biological Change** * As a consequence of various factors * Similarities for classification
• **Organisms and Their Environments** * Relationships among producers, consumers, and decomposers * Effect of environmental changes on organisms * Relationships between organisms and environment * Environment and fossils	• **Populations and Ecosystems** * Individuals and physical factors * Food webs * Sunlight and energy * Carrying capacity	• **The Interdependence of Organisms** * Cycles of living and nonliving components * Energy flow in a system * Competition and cooperation among organisms * Population size, environments, and resources * Ecosystem imbalances
		• **Matter, Energy, and Organization in Living Systems** * Maintaining equilibrium * Capture and release of energy through chemical bonds * Energy flow through levels * Formation of new bonds through release of energy

Core Content for Science Assessment

EARTH AND SPACE SCIENCES ACROSS GRADE LEVELS

Since, in the Earth and Space Sciences, many phenomena occur too slowly or are too far away for direct observation, it is especially important for students to begin with concrete experiences with objects that are nearby or can be observed directly. The understanding of many concepts also depends on the connections students make between what they have learned in the physical and biological sciences, and what they currently are learning in Earth and Space Sciences.

Elementary students examine components of the lithosphere (rocks), hydrosphere (water), and atmosphere (air) and how characteristics of each of them can be observed and measured. They begin to investigate how these components are interrelated. Their study of objects in the sky is limited to what is directly observable (apparent and real movements and shapes of the sun, moon, and stars) and to the planets and their moons as simply members of a system.

Middle level students continue their study of the lithosphere, hydrosphere, and atmosphere but expand it to include the three components as subsystems of a larger Earth system. They also begin to consider the more complex implications of the subsystems being interrelated. They investigate the constructive and destructive forces that create change above, on, and under the earth's surface. Their investigation of the solar system extends to the interrelated motions and forces that exist to maintain equilibrium within the system. Middle level students also investigate the role of the sun as a medium-sized, yellow star in the solar system and how it compares to other stars.

High school students begin to examine evidence of the existence of various events and changes, whether the changes have occurred rapidly or very slowly over an extended period of time. They investigate the interactions of the lithosphere, hydrosphere, and atmosphere, and the energy that flows from one part of the system to another. High school students also examine evidence of the changes the Earth has endured as a whole, its role in the development of the solar system, and the place of the solar system in the galaxy and beyond.

Core Content for Science Assessment

Earth and Space Sciences

Elementary (Assessment at Grade 4)	Middle Level (Assessment at Grade 7)	High School (Assessment at Grade 11)
• **Earth's Components** * Rocks, water, air as materials * Surface changes * Soil composition and characteristics * Resources and recycling * Atmospheric oxygen and liquid water for life * Water cycle * Atmosphere * Weather	• **Earth's Subsystems** * Lithosphere * Constructive and destructive forces * Rock cycle * Soils * Hydrosphere and water cycle * Water as a solvent * Atmosphere * Water cycle, weather, and climate * Seasons * Climate changes * Evidence of change through fossils * Capacity of environment to support life * Interrelationship of humans and resources	• **Earth's Interactions** * Internal and external sources of energy * Plate tectonics * Energy transfers at or near Earth's surface * Changing Earth systems * Estimating geologic time
• **Objects in the Sky** * Planets and their moons * The Sun * Observable patterns of movement and shapes	• **The Solar System and Beyond** * Objects in the Solar System * Motions and events * Gravity * The sun in the galaxy * Constellations	• **Development of the Earth, the Solar System, and The Universe** * Formation of the Solar System * Evidence of development * Formation of lightest elements and stars * Formation of stars and other elements * Galaxies

Level Specific Core Content

Core Content for Science Assessment

Elementary

Assessment of Inquiry at Grade 4

In the early years, while students are developing experiences and vocabularies with subject matter, they also should develop inquiry skills. Students can design investigations to try things and see what happens, and they will focus on concrete results of tests. They will entertain the idea of a fair test - where only one variable is changed at a time. Many of the characteristics of inquiry are included in the demonstrators associated with **Academic Expectation 2.1: The Nature of Scientific Activity.** However, inquiry is a broader concept than a simple list of process skills and includes the methodology of investigation, experimentation, and critical analysis. In the assessment items, students will be asked to not only **use the process** of inquiry, but also to **answer questions about the process.**

Inquiry skills at this level include:

- Asking questions about objects, organisms, and events in the environment.
- Planning and conducting a simple investigation.
- Using simple equipment and tools to gather data and extend the senses.
- Using data to construct a reasonable explanation.
- Communicating investigations and explanations.

Additionally, students should understand these ideas related to **scientific inquiry.**

- Scientific investigations involve asking and answering a question, and comparing the answer with what scientists already know about the world.
- Scientists use different kinds of investigations depending on the questions they are trying to answer. Types of investigations include describing objects, events, and organisms; classifying them; and doing a fair test.
- Simple instruments, such as magnifiers, thermometers, and rulers, provide more information than scientists obtain using only their senses.
- Scientists develop explanations using observations (evidence) and what they already know about the world. Reasonable explanations are based on evidence from investigations.
- Scientists make the results of their investigations public. They describe the investigations in ways that enable others to repeat the investigations.
- Scientists review and ask questions about the results of other scientists' work.

Core Content for Science Assessment

Physical Science for Elementary (Assessment at Grade 4)

Children's natural curiosity leads them to explore the world by observing and manipulating common objects and materials in their environment. They use their senses to identify characteristics of various materials and then use measurement tools to quantify them. They classify objects and materials in two ways, (1) relative to a standard unit of measurement or (2) relative to another object, such as heavier, smaller, or darker. They begin devising classification "rules" to apply to other new objects as well.

By using everyday objects, such as toy cars or sets of gears, children can begin to understand basic concepts about force and motion. They also make observations and inferences about the relationship that exists between the movement of an object and the sound it produces.

When children have experiences with light, heat, electricity, magnetism, and sound, they begin to understand basic energy concepts. For example, energy is needed to get things done. Emphasis is on what the child can observe directly. These observations provide much of the foundation for more abstract ideas at upper grade levels.

Content Statements

- **Properties of Objects and Materials**

  * Objects have many observable properties, such as size, mass, shape, color, temperature, and the ability to react with other substances. These properties can be measured using tools such as metric rulers, balances, and thermometers.

  * Objects are made of one or more materials. The properties of these materials can be used to separate or classify a group of objects.

  * Materials can exist in different states - solid, liquid, and gas. Some common materials can be changed from one state to another by heating or cooling.

Connections To Academic Expectations

2.2 Patterns **2.6 Change Over Time**

Students make observations and measure physical properties (e.g., color, texture) of various objects and materials (Patterns). They use these characteristics to classify and compare the materials (Patterns). They also investigate the physical changes that various types of matter undergo (Change Over Time).

Content Statements

- **Positions and Motions of Objects**

  * The position of an object can be described by comparing it to another object or the background.

  * An object's motion can be described by tracking and measuring its change in position over time.

  * The position and motion of objects can be changed by pushing or pulling. The amount of the change is related to the strength of the push or pull.

  * Sound is produced by vibrating objects. The pitch of the sound can be varied by changing the rate of vibration.

- **Forms of Energy (Light, Heat, Electricity, and Magnetism)**

  * Light travels in a straight line until it strikes an object. Light can be reflected, refracted, or absorbed by the object.

  * Heat can be produced in many ways and can move from one object to another by conduction. Some materials conduct heat much better than others. Good insulators can reduce heat loss.

  * Electricity in circuits can produce light, heat, sound, and magnetic effects. Electrical circuits require a complete loop through which an electrical current can pass.

  * Magnets attract and repel each other and certain kinds of other materials.

Connections To Academic Expectations

2.4 Models and Scale 2.6 Change Over Time

Students investigate the motion and position of objects, how that motion is described and measured, and forces that influence, changes in the object's motion or position (Change Over Time). Various physical models are used to provide concrete experiences relating motion and force (Models and Scale).

2.2 Patterns **2.3 Systems**
2.4 Models and Scale **2.5 Constancy**
2.6 Change Over Time

Students observe and measure the behaviors and effects of light, heat, electricity, and magnetism in order to lay the foundation for an understanding of energy and energy transfers (Patterns, Systems, Models and Scale, Change Over Time).

Students compare the behaviors of light, heat, electricity, and magnetism under different conditions and evaluate the results. Using these types of energy in combination builds an understanding of systems and their component parts (Systems, Constancy).

Core Content for Science Assessment

Life Science for Elementary (Assessment at Grade 4)

"How do plants get food? How many different animals are there? Why do some animals eat other animals? What is the largest plant?" These questions represent children's natural interest and sense of wonder, leading them to direct experiences with living things, their life cycles and their habitats.

Children begin to understand how living things change over time, and they begin to investigate the factors that influence those changes. For example, given a suitable temperature and acceptable water quality, a frog egg will develop first into a tadpole and later into an adult frog. At each stage of its development, the frog is part of the ecosystem. This is something the child can directly observe. The experiences and activities throughout grades P-4 provide a concrete foundation for the progressive development in the later grades of major biological concepts.

Content Statements

- **The Characteristics of Organisms**

  * Organisms have basic needs. For example, animals need air, water, and food; plants require air, water, nutrients, and light. Organisms can only survive in environments in which their needs can be met.

  * Each plant or animal has structures which serve different functions in growth and survival.

  * Living organisms are classified into groups by using various features.

Connections to Academic Expectations

2.2 Patterns **2.3 Systems**
2.4 Models and Scale **2.5 Constancy**
2.6 Change Over Time

Students classify organisms based on observations and comparisons of various external features (Patterns, Constancy, Change Over Time). They examine the relationships that exist between various external structures of plants and animals and their functions (Models and Scale, Systems). As students examine systems (various organisms), they also determine which factors are necessary to keep the system functioning, such as air and light.

Content Statements

Connections to Academic Expectations

- **Life Cycles of Organisms**

  * Plants and animals have life cycles. The details of a life cycle are different for different organisms.

  * Plants and animals closely resemble their parents.

2.2 Patterns **2.3 Systems**
2.5 Constancy

Students describe patterns of development in the life cycles of various groups of plants and/or animals, and compare the similarities and differences between groups and between individuals (Systems, Constancy).

- **Organisms and Their Environments**

  * Plants make their own food. All animals depend on plants. Some animals eat plants for food. Other animals eat animals that eat the plants.

  * The world has many different environments, and distinct environments support the life of different types of organisms. When the environment changes, some plants and animals survive and reproduce, and others die or move to new locations.

  * All organisms cause changes in the environment where they live. Some of these changes are detrimental to the organism or to other organisms; others are beneficial.

  * Some kinds of organisms that once lived on Earth have completely disappeared. Fossils provide evidence about plants and animals that lived long ago and the nature of the environment at that time.

2.2 Patterns **2.3 Systems**
2.4 Models and Scale **2.5 Constancy**
2.6 Change Over Time

Students create and use physical and conceptual models to describe systems (e.g., food webs, ecosystems). They describe the interrelationships between the members or components of the system and include an examination of the stability of the systems and changes they undergo over a period of time (Patterns, Systems, Models and Scale, Constancy, Change Over Time).

Core Content for Science Assessment

Earth and Space Sciences (Assessment at Grade 4)

Young students make observations and collect data about many everyday events and have direct experiences with nearby materials. Soils, rocks, water, and air - and their properties - are fundamental components of the Earth and its many subsystems. These materials also progress through cycles and changes that can be observed and documented. Objects in the sky (e.g., the sun, the moon, or clouds) go through changes in appearance or location that students can observe during hours of daylight and darkness. For events that occur too slowly or are too far away, students design scale models to help explain how things work and how they work together.

Content Statements

- **Earth's Components**

* Earth materials are solid rocks and soils, water, and the gases of the atmosphere.

* The surface of the earth changes. Changes can be due to slow processes (weathering and erosion) and/or rapid processes (landslides and volcanic eruptions).

* Soil is made of weathered rock, plant and animal remains, and contains living organisms. Soils have properties of color, texture, the capacity to retain water, and the ability to support the growth of many kinds of plants.

* Earth materials provide many of the resources that humans use. Many materials can be recycled and used again, sometimes in different forms.

* Earth is unique among the planets in having enough oxygen in its atmosphere and large amounts of water, in liquid form, to sustain life. Oceans cover most of the earth's surface.

* Water on the earth can be a solid, liquid, or gas and can go back and forth from one state to the other. If water is changed from one state to another, the amount (mass) of water remains constant.

* Air is a substance in the form of a gas, which surrounds us and takes up space and whose movement we feel as wind.

* Weather can change from day to day and over the seasons. Weather can be described by observations and measurable quantities, such as temperature, wind direction and speed, and precipitation.

Connections to Academic Expectations

2.2 Patterns 2.3 Systems
2.4 Models and Scale
2.5 Constancy
2.6 Change Over Time

Students classify and describe materials that make up each of the components of the Earth (Patterns). Students also observe, measure, and describe the components of Earth's systems (lithosphere, atmosphere, hydrosphere) and how they behave and interact. Students investigate factors contributing to both short- and long-term changes and factors which tend to stabilize a system, and then use the data and conclusions to generate predictions (e.g., weather) using appropriate models (Systems, Models and Scale, Constancy, Change Over Time).

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Content Statements

- **Objects in the Sky**

  * The earth, along with eight other major planets orbit the sun. Many planets, including the earth, have at least one moon that orbits them.

  * The sun is a star and the only one in our solar system. The sun provides the light and heat that maintain the temperature of the earth. The sun's light and heat are necessary to sustain life on the earth.

  * Objects in the sky have patterns of movement that can be observed and described. For example, the sun appears to move across the sky in the same way every day, but its path changes slowly over the seasons. The moon moves across the sky on a daily basis much like the sun. The observable shape of the moon changes from day to day in a cycle that lasts about a month.

Connections to Academic Expectations

2.2 Patterns **2.3 Systems**

Students progress from an investigation of tangible objects and materials close at hand to larger concepts of the role of the sun and the Earth's place in the Solar System (Systems). Students identify patterns and trends relating to observations they make of the sun and moon and their apparent movements across the sky. They identify and explain the relationships between these movements and positions to changes in seasons (Patterns).

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Core Content for Science Assessment
Middle Level

Assessment of Inquiry at Grade 7

Middle level students should begin to recognize the relationship between explanations and evidence. They can develop the skills of investigation and the understanding that scientific inquiry is guided by knowledge, observations, ideas, and questions. Conceptual and procedural abilities suggest a logical progression, but they do not imply a rigid approach to scientific inquiry. It should not be interpreted as advocating "The Scientific Method." Many of the characteristics of Inquiry are included in the Demonstrators associated with **Academic Expectation 2.1: The Nature of Scientific Activity.** However, Inquiry is a broader concept than a simple list of process skills and includes the methodology of investigation, experimentation, and critical analysis. In the assessment items, students will be asked to not only **use the process** of inquiry, but also to **answer questions about the process.**

Inquiry skills at this level include:

- Identifying questions that can be answered through scientific investigation.
- Designing and conducting a scientific investigation.
- Using appropriate tools and techniques to gather, analyze, and interpret data.
- Developing descriptions, explanations, predictions, and models using evidence.
- Thinking critically and logically to make the relationships between evidence and explanations.
- Recognizing and analyzing alternative explanations and predictions.
- Communicating scientific procedures and explanations.
- Using mathematics and all aspects of scientific inquiry.

Additionally, students should understand the following ideas related to **scientific inquiry:**

- Different kinds of questions suggest different kinds of scientific investigations.
- Current scientific knowledge and understanding guide scientific investigations.
- Mathematics is important in all aspects of scientific inquiry.
- Technology used to gather data enhances accuracy and allows scientists to analyze and quantify results of investigations.
- Scientific explanations emphasize evidence; have logically consistent arguments; and use scientific principles, models, and theories. The scientific community accepts and uses such explanations until displaced by better scientific ones. When such a displacement occurs, science advances.
- Asking questions and querying other scientists' explanations is part of scientific inquiry.
- Scientific investigations sometimes result in new ideas and phenomena for study, generate new methods or procedures for an investigation, or develop new technologies to improve the collection of data.

Core Content for Science Assessment

Physical Science for Middle Level (Assessment at Grade 7)

The focus on student understanding grows from observing and measuring properties of objects and materials to the examination of the properties of the substances from which the materials are made. It may be tempting to introduce atoms and molecules as an explanation for the properties of elements and compounds. However, use of such terminology may be premature for middle level students. More attention should be paid to differences between physical and chemical changes and their reversibility, the constancy of matter and energy, and the relationship among forces, position, and motion.

The studies of motion and forces and the relationship between change and constancy provide many opportunities for concrete experiences upon which a high school curriculum can be built and begin to move towards a development of more abstract concepts. The experiences students have in their everyday lives may be enriched through structured classroom activities with light, heat, and the motion of objects. The intent at this level is for students to improve their understanding of energy by experiencing energy transfers in a variety of systems.

Content Statements

- **Properties and Changes in Properties of Matter**

  * A substance has characteristic properties which are independent of the amount of the sample. A mixture of substances can often be separated into the original substances by using one or more of these characteristic properties.

  * Substances react chemically in characteristic ways with other substances to form new substances (compounds) with different characteristic properties. In chemical reactions, the total mass remains the same, i.e., it is conserved. Substances are often placed in categories or groups if they react in similar ways.

  * Chemical elements do not break down during normal laboratory reactions. Elements combine in a multitude of ways to produce compounds.

Connections to Academic Expectations

2.2 Patterns **2.3 Systems**
2.5 Constancy

Students' observations and measurements of the properties of objects and materials, when displayed in charts and tables, such as the Periodic Table, should yield evidence of consistency and constancy (Patterns, Systems). Their experiences should set the foundation for an understanding of the Law of Conservation of Mass and Energy (Systems, Constancy).

Core Content for Science Assessment

Content Statements	Connections to Academic Expectations
• **Motions and Forces** * The motion of an object can be described by its position, direction of motion, and speed. * An object that is being subjected to balanced forces will remain at rest or will continue to move at a constant speed and in a straight line. * Unbalanced forces will cause changes in the speed or direction of an object's motion. * Vibrations in materials set up wavelike disturbances that spread away from the source.	**2.2 Patterns** **2.4 Models and Scale** **2.5 Constancy** **2.6 Change Over Time** Students collect, display, and analyze data related to motions and positions of objects, and use the data to make inferences and predictions about the objects (Patterns, Constancy, Change Over Time). They design and construct scale models to collect the data (Models and Scale).
• **Transfer of Energy** * Energy is a property of many substances and is associated with heat, light, electricity, mechanical motion, sound, nuclei, and the nature of a chemical. Energy is transferred in many ways. * Heat moves in predictable ways, flowing from warmer objects to cooler ones until both objects reach the same temperature. * Light interacts with matter by transmission (including refraction), absorption, or scattering (including reflection). * The sun's energy arrives as light with a range of wavelengths. * Electrical circuits provide a means of transferring electrical energy when heat, light, sound, and chemical changes are produced.	**2.2 Patterns** **2.3 Systems** **2.4 Models and Scale** **2.5 Constancy** **2.6 Change Over Time** Students design and construct scale models to investigate energy transfers within systems. They collect, display, and analyze data to make predictions and draw conclusions about heat, light, and other forms of energy (Patterns, Constancy, Change Over Time). Students also construct models, such as circuits and schematics, to explain energy transfers involving electricity, heat, and light. Students analyze various systems and their energy levels and how the systems stabilize, malfunction, or cease functioning (Systems, Models and Scale). *Note: At Grade 7, students will be assessed at the knowledge level only regarding nuclear energy concepts.*

Core Content for Science Assessment

Life Science For Middle Level (Assessment at Grade 7)

As a continuation of the previous study of organisms, life cycles, and the relation of organisms to their environment, middle school students begin to discover more details related to the above concepts. Organisms are investigated to determine how groups of cells are organized in such a way that their collective grouping results in specific functions that contribute to the dynamic life system. As a correlate to the adolescent's own development, types of reproduction and the general process of passing on genetic material from one generation to the succeeding generation is determined.

The essence of internal and external regulations that affect the behavior and functioning of an organism is explored. This leads to the concept of how an organism seeks constancy in a changing environment. Adaptation, over a period of time, is identified as a biological mechanism to provide species with unique characteristic., Even though species exhibit differences because of adaptation, many biological structures have commonalities across species. An organism that is unable to adapt to its environment at an adequate rate, is found to be in danger of extinction. Interrelationships of populations within an energy-driven ecosystem are explored. The concept of biotic potential within an ecosystem is developed by the middle school student.

Content Statements

- **Structure and Function in Living Systems**

  * Living systems at all levels of organization demonstrate the relationship between structure and function. Important levels of organization for structure and function include cells, tissues, organs, organ systems, whole organisms, and ecosystems.

  * All organisms are composed of cells, the fundamental unit of life. Most organisms are single cells; other organisms, including humans, are multicellular.

  * Cells carry on the many functions needed to sustain life.

  * Groups of specialized cells cooperate to form a tissue. Different tissues are in turn grouped together to form larger functional units, called organs. Each type of cell, tissue, and organ has a distinct structure and set of functions that serve the organism as a whole.

Connections to Academic Expectations

2.2 Patterns **2.3 Systems**
2.4 Models and Scale

Students observe and analyze the relationship that exists between a living system and its component parts, down to the cellular level (Patterns). They also investigate the ways in which cells work together to perform various functions (Systems). Students investigate ways various models are used to convey understanding of living systems (Models and Scale).

Core Content for Science Assessment

Content Statements	Connections to Academic Expectations
• **Regulation and Behavior** * All organisms must be able to obtain and use resources, grow, reproduce, and maintain stable internal conditions while living in a constantly changing external environment. * An organism must be able to sense and change its internal environment in order to maintain conditions within a certain range that is necessary for survival. * Behavior is one kind of response an organism may make to an internal or environmental stimulus. * An organism's behavior changes through adaptation to its environment.	**2.3 Systems** **2.5 Constancy** **2.6 Change Over Time** Students evaluate how living systems maintain equilibrium even though they also undergo changes (Constancy, Change Over Time). They investigate the relationship between the organism itself and its surroundings (Systems).
• **Reproduction and Heredity** * Reproduction is a characteristic of all living systems and is essential to the continuation of every species. Some organisms reproduce asexually; others reproduce sexually. * In species that reproduce sexually, including humans and plants, an egg and a sperm, each carrying genetic information, unite to begin the development of a new individual. * Every organism requires a set of instructions for specifying its traits. Heredity is the passage of these instructions from one generation to another.	**2.2 Patterns** **2.5 Constancy** Students investigate the relationship between parents and offspring of various species in terms of hereditary characteristics (Patterns). They also recognize that the set of genetic instructions is passed from one generation to another (Constancy).

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Core Content for Science Assessment

Content Statements

- **Diversity and Adaptations of Organisms**
  - * Although different species might look dissimilar, the unity among organisms becomes apparent from an analysis of structures.
  - * Species acquire many of their unique characteristics through biological adaptation. Biological adaptations include changes in structures, behaviors, or physiology that enhance survival and reproductive success in a particular environment.
  - * Extinction of a species occurs when the environment changes and the adaptive characteristics of a species are insufficient to allow its survival.

Connections to Academic Expectations

2.2 Patterns **2.3 Systems**
2.4 Models and Scale **2.5 Constancy**
2.6 Change Over Time

Students analyze and evaluate the relationships among various organisms in a particular environment (Patterns, Systems). They evaluate and make predictions about how individuals and groups of organisms respond to changes in their surroundings (Models and Scale, Constancy, Change Over Time). Students design and construct physical and conceptual models to display their predictions.

- **Populations and Ecosystems**
  - * A population consists of all individuals of a species that occur together at a given place and time. All populations living together, and the physical factors with which they interact, compose an ecosystem.
  - * Populations of organisms can be categorized by the function they serve in an ecosystem. Food webs identify the relationships among producers, consumers, and decomposers in an ecosystem.
  - * For ecosystems, the major source of energy is sunlight. Energy entering ecosystems as sunlight is transferred (through photosynthesis) by producers into chemical energy. That energy then passes from organism to organism in food webs.
  - * The number of organisms an ecosystem can support depends on the resources available and abiotic factors.

2.2 Patterns **2.3 Systems**
2.4 Models and Scale **2.5 Constancy**
2.6 Change Over Time

Students analyze and evaluate the interrelationships and interdependencies among various components of an ecosystem, including the organisms, the resources, and other inorganic factors (Systems, Constancy, Change Over Time). They evaluate and make predictions about how the organisms might respond when a disruption is introduced into a system (Models and Scale, Patterns).

Core Content for Science Assessment

Earth and Space Sciences for Middle Level (Assessment at Grade 7)

While students in elementary grades make observations about various materials and events, older students begin to understand how these fundamental components work together. They can understand how water cycles through the earth's crust and atmosphere, how soil is formed from rocks, how weather factors are related to the earth's surface, and how the sun's energy relates to such things as weather, plant growth, or ocean currents. They also are curious about the space beyond the boundary of the Earth and the place of the Earth in the Solar System and beyond. The assessments at Grade 7 reflect the increase in more abstract concepts as students experience science.

Content Statements

- **Earth's Subsystems**

  * The earth is layered with a thin crust, a hot mantle, and a dense core.

  * Land forms are the result of a combination of constructive and destructive forces. Patterns of earthquakes, volcanoes, and deposition (constructive forces) and weathering and erosion (destructive forces) are observable.

  * Materials found near the surface of the earth are constantly being changed in a continuous process called the rock cycle. Rates of change depend on different surface materials.

  * One product of the rock cycle is weathered rock which, when combined with decomposed organic material, produces soil. Soils are often found in layers, each having a different chemical composition and texture, which are influenced by living organisms.

  * Three-fourths of the earth's solid rock surface is covered by a relatively thin layer of water. It circulates through the crust, oceans, and atmosphere in what is known as the water cycle.

Connections to Academic Expectations

2.2 Patterns **2.3 Systems**
2.4 Models and Scale **2.5 Constancy**
2.6 Change Over Time

Students investigate the lithosphere, hydrosphere, and atmosphere (Patterns, Systems, Models and Scale.) They analyze each of the subsystems and their respective components. Students also investigate the interrelationships among the subsystems and how changes in one affect changes in another (Constancy, Change Over Time).

Students design and construct models (physical and conceptual) to convey understanding of the subsystems and their interrelationships. Models are designed to show how systems maintain stability while continuously changing.

- **Earth's Subsystems (continued)**

  * As a solvent, water dissolves minerals and gases and carries them to the oceans.

  * Earth is surrounded by a relatively thin blanket of air called the atmosphere. The atmosphere consists of gases (including water vapor) which are supportive of the life forms on the earth's surface.

  * The cycling of water through the atmosphere plays an important role in determining patterns of the earth's weather and climate.

  * The sun is the major source of energy for the earth. The growth of plants, winds, ocean currents, and the water cycle are affected by the sun's energy. Seasons result from variations in the amount of the sun's energy hitting the surface, due to the tilt of the earth on its axis.

  * Climate changes have sometimes occurred abruptly in the past as a result of changes in the earth's crust and atmosphere. Even relatively small changes in the atmosphere or ocean content can have significant effects on the earth's climate if the change lasts long enough.

  * Fossils provide important evidence of how environmental conditions and life have changed.

  * Human activities change the earth's land, water, and atmosphere. Some of these changes decrease the capacity of the environment to support life forms.

  * Earth resources exist in limited quantities. The use of the earth's natural resources may affect environment and society. Recycling and conservation methods can have an impact on the long-term survival of humankind and the quality of life on earth.

Content Statements

- **The Solar System and Beyond**

  * Nine planets of very different size, composition, structure, surface features, and number of satellites revolve in space around the sun in elliptical orbits of different sizes. The distance of a planet from the sun plays an important role in the characteristics of the planet. Large numbers of comets and asteroids also orbit the sun.

  * Most objects in the Solar System are in regular and predictable motion. Those motions explain such phenomena as the day, the year, and eclipses.

  * Gravity is a force that keeps the planets in orbit around the sun and governs the rest of the motions in the solar system.

  * The sun is a medium-sized star located near the edge of a disk-shaped, spiral galaxy of stars. Some distant galaxies are so far away that their light takes several billion years to reach the Earth.

  * Stars form patterns in the sky. These patterns stay the same, although they appear to move across the sky nightly, and different constellations are seen in different seasons.

Connections to Academic Expectations

2.2 Patterns **2.3 Systems**
2.4 Models and Scale **2.5 Constancy**
2.6 Change Over Time

Students describe the objects that make up the solar system and their respective motions around the sun (Patterns, Systems, Constancy, Change Over Time). They design and construct models to represent gravity, inertia, and the relative position and motions of the objects.

Students develop explanations of scale and its relevance to certain models. They also analyze the significance of vantage point and perspective on the design of scale models (Models and Scale).

Core Content for Science Assessment
High School

Assessment of Inquiry at Grade 11

Students at this level need to be able to analyze evidence and data. They can determine the range of data, calculate the mean and mode values of the data, plot the data, develop mathematical functions from the data, and look for anomalous data. They should select and use specific scientific tools and/or equipment to perform certain tasks. Students should be able to design a controlled experiment, carry out the experiment and generate data, and draw conclusions based on that data. They should evaluate information, such as an advertising claims, on the basis of its scientific validity and support a position with logical conclusions. Additionally, students should have knowledge of the social conditions which have been conducive to or have inhibited the advancement of scientific knowledge.

Many of the characteristics of Inquiry are included in the demonstrators associated with **Academic Expectation 2.1: The Nature of Scientific Activity.** However, Inquiry is a broader concept than a simple list of process skills and includes the methodology of investigation, experimentation, and critical analysis. In the assessment items, students will be asked to not only **use the process** of inquiry but also to **answer questions about the process.**

Inquiry skills at this level include:
- Identifying questions that guide scientific investigation.
- Designing and conducting scientific investigations.
- Using technology and mathematics to improve investigations and communications.
- Formulating and revising scientific explanations and models using logic and evidence.
- Recognizing and analyzing alternative explanations and models.
- Communicating and defending a scientific argument.

Additionally, students should understand these ideas related to **scientific inquiry**.
- Historical and current scientific knowledge influence the design and interpretation of investigations, and the evaluation of proposed explanations made by other scientists.
- Scientists conduct investigations for a wide variety of reasons.
- Scientists rely on technology to enhance the gathering and manipulation of data.
- Mathematics is essential to scientific inquiry.
- Scientific explanations must adhere to criteria.
- Results of scientific inquiry, new knowledge and new methods, emerge from different types of investigations and public communication among scientists.

Core Content for Science Assessment

Physical Science for High School (Assessment at Grade 11)

Assessments in physical science will focus on matter and energy. The structure and interactions of matter, forms of energy, energy transfers, and the relationships that exists between matter and energy are all important concepts in physical science. Students draw conclusions from experiments and investigations through direct experiences with matter and energy, and they make analyses and evaluations from indirect observations and derived data. Students should recognize the historical significance of various aspects of physical science, from the evolution of atomic models to the discovery and development of the Periodic Table of the Elements. Students move from qualitative observations to quantitative measurements of such variables as temperature change and kinetic energy. They also learn about the derivation of some of the most fundamental laws governing the physical world, such as the Laws of Motion, Law of Gravitational Attraction, and the Law of Conservation of Matter and Energy, and the significant effect these phenomena have on their everyday lives.

Content Statements

- **Structure of Atoms**

  * Matter is made of minute particles called atoms, and atoms are composed of even smaller components. The components of an atom have measurable properties, such as mass and electrical charge. Each atom has a positively charged nucleus surrounded by negatively charged electrons. The electric force between the nucleus and the electrons holds the atom together.

  * The atom's nucleus is composed of protons and neutrons. The nuclear forces that hold the nucleus together, at nuclear distances, are usually stronger than the electric forces that would make it fly apart.

  * Fission is the splitting of a large nucleus into smaller pieces. Fusion is the joining of two nuclei at extremely high temperature and pressure.

Connections to Academic Expectations

2.2 Patterns **2.3 Systems**
2.4 Models and Scale **2.5 Constancy**

Students create and use mathematical and conceptual models to bridge the gap between observable properties of matter and the molecular, atomic, and subatomic structure of matter (Patterns, Systems, Constancy, Models, and Scale). They recognize that components of an atom have observable and measurable properties (Patterns, Constancy).

Students recognize that forces are responsible for atomic structure and the relationship that exists between the nuclear force and the electric force in the nucleus of an atom (Systems).

Core Content for Science Assessment

Physical Science for High School

Content Statements	Connections to Academic Expectations

- **Structure and Properties of Matter**

2.2 Patterns **2.3 Systems**
2.4 Models and Scale **2.5 Constancy**

* An element is composed of a single type of atom. When elements are listed in order according to the number of protons, repeating patterns of physical and chemical properties identify families of elements with similar properties.

* Atoms interact with each other by transferring or sharing electrons that are farthest from the nucleus. These outer electrons of an atom govern the chemical properties of the element.

* Bonds between atoms are created when electrons are paired up by being transferred or shared. A compound is formed when two or more kinds of atoms bind together chemically.

* The physical properties of compounds reflect the nature of the interactions among its molecules.

Students explain patterns of electron arrangements and the correlation between the structure of an atom and its physical and chemical properties (Patterns, Models and Scale, Systems).

Students predict and create models to explain the types of bonds that are formed between atoms (Patterns, Constancy). They analyze the relationship that exists between or among a compound's molecules and the physical properties of the compound (Patterns, Systems, Constancy).

- **Chemical Reactions**

2.2 Patterns **2.3 Systems**
2.4 Models and Scale **2.5 Constancy**
2.6 Change Over Time

* Chemical reactions occur all around us. They may release or consume energy.

* A large number of reactions that are important to humans involve the transfer of either electrons or hydrogen ions between reacting ions, molecules, or atoms.

* Reaction rates depend on how often the reacting atoms and molecules encounter one another, the temperature, and the properties, including shape, of the reacting species. Catalysts speed up or slow down chemical reactions.

Students evaluate the role and influence of chemical reactions and energy on their everyday lives (Patterns, Systems, Constancy). They demonstrate how a small number of factors determine reaction rates (Systems, Models and Scale, Change Over Time).

Core Content for Science Assessment

Content Statements	Connections to Academic Expectations
• **Motions and Forces** * Objects change their motion only when a net force is applied. Laws of motion are used to predict and/or calculate the effects of forces on the motion of objects. * Gravity is a universal force that each mass exerts on any other mass. * The electric force is a universal force that exists between any two charged objects. Opposite charges attract while like charges repel. * Electricity and magnetism are two aspects of a single electromagnetic force. Moving electric charges produce magnetic forces and moving magnets produce electric forces.	**2.2 Patterns** **2.3 Systems** **2.4 Models and Scale** **2.5 Constancy** Students create and use models (physical, conceptual, mathematical) to represent the relationship between forces and the motion of objects (Patterns, Systems, Models and Scale, Constancy). Students analyze the relationship between gravitational and electromagnetic forces and motions that they observe in everyday life (Patterns, Systems, Constancy).
Conservation of Energy and the Increase in Disorder * The total energy of the universe is constant. Energy can be transferred by collisions in chemical and nuclear reactions, by light waves and other radiations, and in many other ways. However, it can never be destroyed. As these transfers occur, the matter involved becomes steadily less ordered. * All energy can be considered to be either kinetic energy, potential energy, or energy contained by a field (e.g., electric field, magnetic field, gravitational field). * Heat consists of random motion and the vibrations of atoms, molecules, and ions. The higher the temperature, the greater the atomic or molecular motion. * Everything tends to become less orderly and less organized over time. Thus, in all energy transfers, the overall effect is that the energy is spread out uniformly.	**2.2 Patterns** **2.3 Systems** **2.4 Models and Scale** **2.5 Constancy** **2.6 Change Over Time** Students recognize that the total amount of matter and energy is fixed and explain implications of that relationship (Constancy, Change Over Time). Students predict the outcome of repeated energy transfers and their implications for maintaining system stability and/or equilibrium (Patterns, Systems, Models and Scale, Constancy, Change Over Time). Students analyze the relationship between a system's tendency towards disorder and maintaining equilibrium (Systems, Constancy, Change Over Time).

Core Content for Science Assessment

Content Statements

- **Interactions of Matter and Energy**

  * Waves have energy and can transfer energy when they interact with matter.

  * Electromagnetic waves result when a charged object is accelerated or decelerated.

  * Each kind of atom or molecule can gain or lose energy only in particular discrete amounts and, thus, can absorb and emit light only at wavelengths corresponding to these amounts.

  * In some materials, electrons flow easily, whereas in insulating materials, they can hardly flow at all. Semiconducting materials have intermediate behavior. At low temperatures, some materials become superconductors and offer no resistance to the flow of electrons.

Connections to Academic Expectations

2.2 Patterns **2.3 Systems**
2.4 Models and Scale **2.5 Constancy**
2.6 Change Over Time

Students predict and evaluate outcomes of waves' interactions with matter (Patterns, Systems). They evaluate the results when certain objects lose or transfer energy (Patterns, Change Over Time).

Students create, apply, and evaluate scale models as they explain the energy levels of electricity through various types of conductors (Patterns, Systems, Models and Scale, Constancy, Change Over Time).

Core Content for Science Assessment

Life Science for High School (Assessment at Grade 11)

Life Science at the high school level should expand to incorporate more abstract knowledge and more comprehensive theories than was taught in the middle grades. It should encompass scales that are both smaller and larger than those studied earlier, such as from a molecular level to the size of the biosphere. The relationships between concepts in chemistry and the functions within living systems are developed in the study of genetics and DNA. The results of these relationships and consequences are evident in the changes that organisms undergo in an effort to sustain the species. Two significant components of understanding biological sciences are found in the interdependent relationships between and among organisms throughout ecosystems and the organization of matter and energy in living systems. Students at this level should recognize and understand that evidence of change as well as stability exists in all living systems.

Content Statements

- **The Cell**

  * Cells have particular structures that underlie their functions. Inside the cell is a concentrated mixture of thousands of different molecules which form a variety of specialized structures that carry out cell functions.

  * Most cell functions involve chemical reactions. Food molecules taken into cells react to provide the chemical constituents needed to synthesize other molecules. The break down of some of the food molecules enables the cell to store energy in specific chemicals that are used to carry out the many functions of the cell.

  * Cells store and use information to guide their functions. The genetic information stored in DNA is used to direct the synthesis of the thousands of proteins that each cell requires.

  * Cell functions are regulated. This regulation allows cells to respond to their environment and to control and coordinate cell growth and division.

  * Plant cells contain chloroplasts, the site of photosynthesis. This process of photosynthesis provides a vital link between the sun and the energy needs of living systems.

  * Cells can differentiate. Complex multicellular organisms are formed as a highly organized arrangement of differentiated cells.

Connections to Academic Expectations

2.2 Patterns **2.3 Systems**
2.4 Models and Scale **2.5 Constancy**
2.6 Change Over Time

Students create and use models to explain relationships that exist between structures of a cell and their functions (Patterns, Systems). They identify assumptions about the models that influence the quality of the explanations (Models and Scale). They also identify cycles and trends in the analysis of cell growth, development, and reproduction (Patterns, Systems Constancy).

Students analyze factors that have contributed to cell differentiation and specialization and the effect it has had on cells' abilities to survive (Patterns, Systems, Constancy, Change Over Time).

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Content Statements

- **The Behavior of Organisms**

  * Multicellular animals have nervous systems that generate behavior.

  * Organisms have behavioral responses to internal changes and to external stimuli, some of which enable them to survive. Responses to external stimuli can result from interactions with the organisms' own species and others, as well as environmental changes; these responses can be either innate or learned.

Connections to Academic Expectations

2.3 Systems **2.6 Change Over Time**

Students evaluate how changes in the external environment of an organism affect the organism, both physiologically and behaviorally (Systems, Change Over Time).

Content Statements

- **The Molecular Basis of Heredity**

  * In all organisms, the instructions for specifying the characteristics of the organism are carried in DNA.

  * The fact that the human body is formed from cells that contain two copies ofeach chromosome explains many features of human heredity.

  * Changes in DNA (mutations) occur spontaneously at low rates. Some of these changes make no difference to the organism, whereas others can change cells and organisms. Only mutations in germ cells can create the variation that changes an organism's offspring.

Connections to Academic Expectations

2.3 Systems **2.4 Models and Scale**
2.5 Constancy **2.6 Change Over Time**

Students design, create, and evaluate models to analyze the role of DNA in the transference of inherited characteristics from one generation to the next (Constancy, Change Over Time,

Students also evaluate how change in an aspect of an organism's internal or external environment may result in a change in the next generation (Systems, Models and Scale, Constancy, Change Over Time).

Core Content for Science Assessment

Content Statements | **Connections to Academic Expectations**

- **Biological Change**

  * Species change over time. These changes are the consequence of the interactions of (1) the potential for a species to increase its numbers; (2) the genetic variability of offspring due to mutation and recombination of genes; (3) a finite supply of the resources required for life; and (4) the ensuing selection by the environment of those offspring better able to survive and leave offspring.

  * Biological classifications are based on how organisms are related. Organisms are classified into a hierarchy of groups and subgroups based on their similarities. Species is the most fundamental unit of classification. Different species are classified by the comparison and analysis of their internal and external structures and the similarity of their chemical processes.

2.2 Patterns **2.3 Systems**
2.4 Models and Scale **2.6 Change Over Time**

Students relate the occurrence of new variations in a population to the potential effect of those variations on the long-term survival of the species as a whole (Systems, Models and Scale, Change Over Time).

Students develop a rationale for the classification system that identifies species as a basis for classifying organisms and propose possible alternatives (Patterns, Systems, Models and Scale).

- **The Interdependence of Organisms**

  * The atoms and molecules on the Earth cycle among the living and nonliving components of the biosphere.

  * Energy flows through ecosystems in one direction from photosynthetic organisms to herbivores to carnivores and decomposers.

  * Organisms both cooperate and compete in ecosystems. The interrelationships and interdependencies of these organisms may generate ecosystems that are stable for hundreds or thousands of years.

  * Living organisms have the capacity to produce populations of infinite size. Since environments and resources are finite, the size of the population is influenced.

  * Human beings live within the world's ecosystems. Human activities can, deliberately or inadvertently, alter the equilibrium in ecosystems.

2.2 Patterns **2.3 Systems**
2.4 Models and Scale **2.5 Constancy**
2.6 Change Over Time

Students analyze the significance of the roles and interrelationships of individuals (organisms or populations) in an ecosystem (Patterns, Systems, Models and Scale, Constancy, Change Over Time). They also analyze the nature of energy flow through an ecosystem and the stability of the system (Patterns, Constancy).

Students create and use models (physical, conceptual, mathematical) to explain the relationship in an ecosystem of both cooperation and competition (Constancy, Change Over Time).

Core Content for Science Assessment

Content Statements

- **Matter, Energy and Organization in Living Systems**

  * All matter tends toward more disorganized states. Living systems require a continuous input of energy to maintain their chemical and physical organization.

  * The energy for life primarily derives from the sun. Plants capture energy by absorbing light and using it to form strong (covalent) chemical bonds between the atoms of carbon-containing (organic) molecules. In addition, the energy stored in the bonds between the atoms (chemical energy) can be used as sources of energy for life processes.

  * The chemical bonds of food molecules contain energy. Energy is released when the bonds of food molecules are broken and new compounds with lower energy bonds are formed.

  * As matter and energy flow through different levels of organization of living systems and between living systems and the physical environment, chemical elements are recombined in different ways. Matter and energy are conserved in each change.

Connections to Academic Expectations

2.2 Patterns **2.3 Systems**
2.4 Models and Scale **2.5 Constancy**
2.6 Change Over Time

Students apply connections among concepts from all the natural sciences in their analyses of matter, energy, and organization (Patterns, Systems, Models and Scale, Constancy, Change Over Time).

Students explain the relationships and processes that exist between the Sun's energy and the energy in food molecules (Systems, Constancy).

Students analyze the concept of conservation of matter and energy (and the tendency to become more disorganized) as they flow through living systems (Patterns, Systems, Models and Scale, Constancy, Change Over Time).

Core Content for Science Assessment

Earth and Space Science for High School (Assessment at Grade 11)

Assessment of earth and space sciences in grades P-8 was focused mainly on the earth as a system and our solar system. In high school, that focus continues even though students begin a more theoretical study of the universe. The development of concepts continues from direct observations and measurements to more abstract ideas and the collection of evidence for events and phenomena which occur too slowly, over a long period of time, or are too far away for direct observations. Emphasis at the high school level is on the interactions of energy and the subsystems (lithosphere, hydrosphere, and atmosphere) of the earth and well as the energy flow through the subsystems. Just as the study of the earth progresses from concrete to more abstract, so does the study of the cosmos. It grows from a knowledge of the planets and their moons simply as members of the solar system to the analysis of evidence and the physical laws that explain the development of the solar system, other galaxies, and the universe itself.

Content Statements

- **Earth's Interactions**

  - Earth systems have sources of energy that are internal and external to the earth.
  - The outward transfer of the earth's internal heat drives convection circulation in the mantle. This causes the crustal plates comprising the earth's surface to move on the face of the earth (i.e., plate tectonics).
  - Heating of the earth's surface and atmosphere by the sun drives convection within the atmosphere and oceans, producing winds and ocean currents. Global climate is determined by energy transfer from the sun at and near the earth's surface (e.g., local weather, regional climate, ocean currents).
  - Interactions among the solid earth, the oceans, the atmosphere, and living things have resulted in the ongoing development of a changing earth system.
  - Using radioactive dating, observing rock sequences and comparing fossils to correlate the rock sequences at various locations are techniques used to estimate geologic time.

Connections to Academic Expectations

2.2 Patterns **2.3 Systems**
2.4 Models and Scale **2.5 Constancy**
2.6 Change Over Time

Students analyze the processes that circulate energy throughout Earth's systems and subsystems, such as weather, convection currents in the mantle, and the water cycle (Patterns, Systems, Models and Scale, Constancy, Change Over Time). They analyze the concept of the earth system existing in a state of dynamic equilibrium (Constancy, Change Over Time).

Students investigate and predict the effects of introducing an external factor into a system and the possible disequilibrium of all or part of the Earth system, taking into account scale, sequence, and rate (Systems, Models and Scale, Constancy, Change Over Time).

Students evaluate the appropriateness of methods of measuring geologic time (Patterns, Change Over Time).

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Content Statements

- **Development of the Earth, the Solar System, and the Universe**

  * It is theorized that the sun, the earth, and the rest of the solar system formed from a nebular cloud of dust and gas over time.

  * The Big Bang Theory, and observational measurements that support it, place the origin of the universe at a time between 10 and 20 billion years ago, when the universe began in a hot, dense state. According to this theory, the universe has been expanding since then.

  * Early in the history of the universe, the first atoms to form were mainly the lightest and most abundant elements - hydrogen and helium. Clumping together under gravitational attraction, these elements formed trillions of stars.

  * Stars produce energy from nuclear reactions, primarily the fusion of hydrogen to form helium. These and other processes in stars have led to the formation of all the other elements.

  * Gravitationally-bound clusters of stars, called galaxies, now form most of the visible mass in the universe.

Connections to Academic Expectations

2.2 Patterns **2.3 Systems**
2.4 Models and Scale **2.5 Constancy**
2.6 Change Over Time

Students evaluate evidence of change and stability in Earth systems, the solar system, and the universe (Patterns, Systems, Models and Scale, Constancy, Change Over Time).

Students analyze the appropriateness of scale and perspective in the communication of concepts related to the earth, the solar system, and the universe.

Students investigate the differences inherent in acquiring data directly versus indirectly with regard to extremely large-scale time and distance measurements of very distant stars, galaxies, and galaxy clusters (Models and Scale).

Core Content for Social Studies Assessment

Version 1.0

Core Content for Social Studies Assessment

The goal of social studies education is to help students become contributing, participating, and knowledgeable citizens. To achieve this goal, students must know, understand, and apply the content and concepts of the various sub-disciplines of social studies (e.g., government, history, geography, economics, social systems and culture).

The charts of content on the following pages are organized into five areas based on the seven academic expectations for social studies. The areas are Government and Civics, Culture and Society, Economics, Geography, and History. This arrangement combines four academic expectations into two areas: Academic Expectations 2.14: Democratic Principles and 2.15: Political Systems became Government and Civics and Academic Expectations 2.16: Social Systems and 2.17: Cultural Diversity became Culture and Society.

Each of the five areas are further organized around three to four assertions or broad content statements. The same assertions are used across the grade level clusters (elementary--assessment at grade 5, middle level--assessment at grade 8, and high school--assessment at grade 11). Bullets under each assertion then highlight the grade level differences. The bullets are aligned across grade level clusters to show the building or spiraling curriculum of social studies--where a concept is introduced in elementary school and further developed in middle and high school. Therefore, the earlier levels act as a prerequisite to later levels of content.

There is one exception to format. History is organized to follow the *Program of Studies for Kentucky Schools, P-12* which divides historical periods and topics among the three grade level clusters.

Core Content for Social Studies Assessment

Government and Civics

The study of Government and Civics allows students to understand the nature of government and the unique characteristics of American democracy including its fundamental principles, structure, and role of citizens.

Academic Expectation 2.14: Students understand the democratic principles of justice, equality, responsibility, and freedom and apply them to real-life situations.

Academic Expectation 2.15: Students can accurately describe various forms of government and analyze issues that relate to the rights and responsibilities of citizens in a democracy.

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
People form governments to establish order, provide security, and accomplish common goals.		
• Democratic governments function according to the needs and wants of the citizens and provide for society's needs (e.g., police and fire departments, education, highways).	• Governments may take different forms such as constitutional, parliamentary, dictatorships, and monarchies.	• Governments derive their power from different sources (e.g., democracy-its citizens; monarchies-by decree; totalitarianism, communism, socialism-by conquest, political maneuvering, and/or military power).
• The purpose of a government's rules and laws is to establish and maintain order (e.g., U.S. Constitution, school rules).	• Democratic governments function to preserve and protect the rights, liberty, and property of their citizens by making, enacting, and enforcing appropriate rules and laws (e.g., U.S. Constitution, Magna Carta, Monroe Doctrine).	• Different forms of democratic government preserve and protect the rights and liberties of their constituents through different means (e.g., U.N. Charter, Declaration of the Rights of Man, U.N. Declaration of Human Rights, U.S. Constitution, U.S. Declaration of Independence).
• The purposes of the government of the United States are specifically listed in the Preamble to the U.S. Constitution.	• The Constitution of the U.S. is a flexible document and changes over time to meet the needs of its citizens.	• The U.S. Government's response to contemporary issues and societal problems reflects the needs and wants of its citizens (e.g., education, welfare system, health insurance, child-care issues, crime).

Core Content for Social Studies Assessment

Government and Civics

The Constitution of the United States establishes a government of limited powers which are shared among different levels and branches.

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
• The three levels of government are local, state, and national. • The three branches of government at each level are legislative (makes laws), executive (carries out or enforces laws), and judicial (interprets laws).	• Legislative, executive, and judicial powers are distributed and shared among the three branches of national government (e.g., although Congress has primary legislative power, the executive branch can submit bills and establish regulations, and the Supreme Court can interpret laws and declare laws unconstitutional).	• Powers of government are distributed and shared among levels and branches to reflect the "common good" (e.g., Congress legislates on behalf of the people; the President represents the people as a nation; the Supreme Court acts on behalf of the people as a whole when it interprets the Constitution).
• Specific offices associated with the different branches and levels vary in title but contain similar duties and responsibilities (e.g., local-mayor; state-governor; national-president).	• Each branch of government can "check" the powers of the other branches (e.g., the executive branch has power to veto laws passed by Congress and nominate members of the federal judiciary).	• The system of governmental "checks and balances," the Electoral College, and federalism reduces the chances of abuse, protects individual rights, and promotes the "common good."

All citizens of the United States have certain rights and responsibilities as members of a democratic society.

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
• Rights and responsibilities of the individual extend to specify roles within various groups including family, peer group, school, class, and community. • The U.S. government guarantees certain rights such as those found in the first ten amendments to the U.S. Constitution (e.g., Bill of Rights).	• The United States Declaration of Independence, the Constitution, the Bill of Rights, and state constitutions guarantee certain rights for all citizens (e.g., freedom of movement and residence; freedom of religion; freedom of expression and association; and personal privacy).	• The rights of one individual may, at times, be in conflict with the rights of another (e.g., smoking in public places, free speech, slander, libel). • The rights of an individual may, at times, be in conflict with the responsibility of the government to protect the common good (e.g., Freedom of Information Act, need for national security, environmental regulations).
• In order for a democratic form of government to function, citizens must play an active role (e.g., government by the people, for the people).	• In order for the U.S. government to function as a democracy, citizens must assume responsibility for its function (e.g., participating in civic groups, paying taxes, obeying the law, serving in the armed forces, and voting in elections).	• In order for our government to function as a democracy and preserve individual rights, citizens must assume responsibility for its function which may, at times, be in conflict with their personal wants and responsibilities (e.g., assuming leadership positions, performing public service, serving in the armed forces).

Core Content for Social Studies Assessment

Culture and Society

Culture is the way of life shared by a group of people including their ideas and traditions. In America's multicultural society, students need to understand that culture influences viewpoints, social rules, and social institutions.

Academic Expectation 2.16: Students observe, analyze, and interpret human behaviors, social groupings, and institutions to better understand people and the relationships among individuals and among groups.

Academic Expectation 2.17: Students interact effectively and work cooperatively with the many diverse ethnic and cultural groups of our nation and world.

<table>
<tr><th>Elementary (Assessment at Grade 5)</th><th>Middle Level (Assessment at Grade 8)</th><th>High School (Assessment at Grade 11)</th></tr>
<tr><td colspan="3">Culture is a system of beliefs, knowledge, institutions, traditions and skills shared by a group.</td></tr>
<tr><td>• Language, music, art, dress, food, stories, and folktales help define culture.
• Elements of culture (e.g., language, music, art, dress, food, stories, folktales) may be shared among various groups, but those same elements serve to define specific groups.</td><td>• Language, literature, the arts, beliefs, and behaviors help define culture.</td><td>• Philosophy, religion, values, technology, and behavior patterns help define culture.</td></tr>
<tr><td colspan="3">Different cultures address human needs in similar and different ways.</td></tr>
<tr><td>• All cultures develop institutions, customs, beliefs, and holidays reflecting their unique histories and situations (e.g., Thanksgiving, Mexico's Cinco de Mayo, schools, churches, synagogues, extended family).</td><td>• All cultures develop institutions, customs, beliefs, and holidays reflecting their unique histories and situations (e.g., sports, marriage ceremonies, markets, mosques, Memorial Day, Chanukah, Kwanza).</td><td>• All cultures develop institutions, customs, beliefs, and holidays reflecting their unique histories and situations (e.g., myths, anthems, careers, technology, caste systems, monogamy, democracy, theocracy).</td></tr>
<tr><td colspan="3">Social institutions (government, economy, education, religion, family) respond to human needs, structure society, and influence behavior.</td></tr>
<tr><td>• Various human needs are met through interaction in and among social groups (e.g., family, schools, teams, and clubs).</td><td>• Various human needs are met through interaction in and among social groups (e.g., family, schools, athletics, clubs, and religious groups).</td><td>• Various human needs are met through interaction in and among social groups (e.g., family, sports, political parties).</td></tr>
</table>

Core Content for Social Studies Assessment

Culture and Society

Social interactions among individuals and groups assume various forms.

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
• As cultures emerge and develop, conflict and competition may occur (e.g., war, disagreements, arguments, stereotypes, prejudice).	• As cultures emerge and develop, conflict and competition may occur (e.g., violence, difference of opinion, stereotypes, prejudice, discrimination).	• As cultures emerge and develop, conflict and competition may occur (e.g., violence, difference of opinion, stereotypes, prejudice, discrimination, genocide).
• Compromise and cooperation are inherent characteristics of social interaction (e.g., conflict resolution, counseling).	• Compromise and cooperation are inherent characteristics of social interaction (e.g., peace studies, conflict resolution, counseling).	• Compromise and cooperation are inherent characteristics of social interaction (e.g., peace studies, conflict resolution, counseling, mediation).

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Core Content for Social Studies Assessment

Economics

Economics includes the study of production, distribution, and consumption of goods and services. Students need to understand how their economic decisions affect themselves, others, and the nation as a whole.

Academic Expectation 2.18: Students understand economic principles and are able to make economic decisions that have consequences in daily living.

The basic economic problem confronting individuals and societies is the scarcity or imbalance between unlimited wants and limited resources available for satisfying those wants.

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
• Consumers use goods and services to satisfy economic wants.	• Productive resources (land, labor, capital) are limited and do not satisfy all our wants.	• Scarcity of resources necessitates choice at both the personal and societal levels.
• Scarcity requires people to make choices about using goods and services and limited resources.	• Governments, societies, and individuals experience scarcity because productive resources are limited and wants are unlimited.	• Federal, state, and local governments have limited budgets, so they must compare revenues to the costs when planning public projects.
• Everytime a choice is made, an opportunity cost is incurred. • Opportunity cost refers to the value of what is given up when an economic choice is made.	• To make informed choices, consumers must analyze advertisements, consider personal finances, and examine the opportunity cost.	• To make informed choices, consumers must analyze advertisements, consider personal finances (including the importance of savings, investment, use of credit), and examine opportunity cost.

Core Content for Social Studies Assessment

Economics

<table>
<tr><th>Elementary (Assessment at Grade 5)</th><th>Middle Level (Assessment at Grade 8)</th><th>High School (Assessment at Grade 11)</th></tr>
<tr><td colspan="3">To deal with the problem of scarcity, people and societies create economic systems and institutions.</td></tr>
<tr><td>• Economic systems can be large (e.g., U.S. economy) or small (e.g., individuals and households).</td><td>• Economic systems which allocate resources for production and distribution of goods and services can be traditional, command, or market. Modern economies use a "mixed system" which has features of all three.</td><td>• Economic systems can be evaluated by their abilities to achieve broad social goals such as freedom, efficiency, equity, security, and growth.</td></tr>
<tr><td>• The U.S. economic system has financial institutions like banks.</td><td>• Economic institutions include such organizations as corporations, labor unions, banks, the stock market, cooperatives, and partnerships.</td><td>• Several kinds of specialized economic institutions such as corporations, banks, and other financial organizations are found in market economies.</td></tr>
<tr><td>• The U.S. economic system is based on free enterprise where businesses seek to make profits by producing goods or services.
• Profit is the difference between revenues and the costs entailed in producing or selling a good or service.</td><td>• The hope of earning profit motivates businesses to take the risks involved in producing goods and services.</td><td>• Consumers, producers, workers, savers, and investors in every economic system attempt to allocate their scarce resources for the highest possible return (profit) within the institutional limits of the society.</td></tr>
<tr><td colspan="3">Markets are institutional arrangements that enable buyers and sellers to exchange goods and services.</td></tr>
<tr><td>• A market exists whenever buyers and sellers exchange goods and services.</td><td>• Prices of goods and services are determined by supply and demand. The market price is the one at which quantity supplied equals quantity demanded.</td><td>• The supply and demand and price of a product will normally change if there is a change in technology, prices of inputs, prices of similar products, consumers' income, consumers' perferences or shortages and surpluses.</td></tr>
<tr><td>• The direct exchange of goods and services is called barter. Money has generally replaced barter as a more efficient system for exchange.</td><td>• Money can be used to express the market value of different goods and services (unit of account).</td><td>• Specific financial and nonfinancial incentives often influence individuals differently (e.g., discounts, sales promotions, trends).</td></tr>
<tr><td></td><td>• Competition among buyers and sellers impacts the price of goods and services.</td><td>• The level of competition in a market is largely determined by the number of buyers and sellers in a market.</td></tr>
<tr><td></td><td>• Government regulation defines and enforces property rights as well as provides standard units of weight, measures, and money.</td><td>• Laws and government regulations have been adopted to maintain competition in the United States, however they do not always have the desired effect (e.g., local telephone charges).</td></tr>
</table>

Core Content for Social Studies Assessment

Economics

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
All societies must deal with questions about production, distribution, and consumption.		
• Producers create goods and services and consumers make economic choices about which ones to purchase. • The government provides goods and services and pays for them with taxes (e.g., police force, firefighting, food surpluses). Sometimes, however, private businesses offer these same goods and services for profit.	• The basic economic questions considered by producers are 1) What to produce? 2) How to produce it? 3) Who will consume it?	• An entrepreneur is a person who organizes and manages a business and/or enterprise usually with considerable initiative and risk.
	• Productive resources are all natural resources (land), human resources (labor), and human-made resources (capital) used to make goods and services.	• Technological change and investments in capital goods and human capital increase productivity.
	• Productivity can be increased by improving the quality of labor with training, education, and healthcare and by using additional capital goods (e.g., tools, machines, technological advances, robotics, computer graphics).	• Investments in capital goods and labor can increase productivity but have significant opportunity costs and economic risks.
• Producers who specialize create a small range of goods or services instead of producing many different things.	• Specialization and division of labor usually increase labor productivity.	• Specializing in the production of goods and services leads to interdependence. Greater specialization brings increasing interdependence.
	• Personal, national, and international economic activities are interdependent.	• The interdependence of personal, national, and international economic activity often results in international issues and concerns.

Core Content for Social Studies Assessment

Geography

Geography is the study of people, places, and environments. Students need geographic knowledge to understand the world and their relationship to it. A geographic perspective also enables students to better understand the past and present and to prepare for the future.

Academics Expectation 2.19: Students recognize and understand the relationship between people and geography and apply their knowledge in real-life situations.

Note: Physical geography is assessed in the science section of KIRIS.

<table>
<tr><th>Elementary (Assessment at Grade 5)</th><th>Middle Level (Assessment at Grade 8)</th><th>High School (Assessment at Grade 11)</th></tr>
<tr><td colspan="3">Patterns on the Earth's surface can be identified by examining where things are, how they are arranged, and why they are in a particular location.</td></tr>
<tr><td>• Simple physical, political, and thematic maps, globes, charts, and graphs can be used to find and explain locations and display information.</td><td>• Maps, globes, photographs, models, and satellite images are representations of Earth with different characteristics and uses (e.g., map projections--Mercator and Robinson).</td><td>• Representations of Earth and databases can be used to analyze the distribution of physical and human features on Earth's surface (e.g., Geographic Information Systems, census records).</td></tr>
<tr><td>• Every spot on the Earth has an absolute location defined by latitude and longitude and a relative location as compared to other points on Earth's surface.</td><td></td><td></td></tr>
<tr><td>• Mental maps are used to visualize where things are and how they are arranged.</td><td>• Mental maps are influenced by a person's experiences and culture (e.g., isolation versus access to transportation and media).</td><td>• Mental maps become more complex as experience, study, and the media bring new geographic information.</td></tr>
<tr><td>• After looking at spatial factors, decisions are made about where to locate human activities on Earth's surface (e.g., where to locate a store, house, playground or equipment on a playground).</td><td>• Different factors affect where human activities are located and how land is used in urban, rural, and suburban areas (e.g., dams, rivers, developments).</td><td>• The location and distribution of human features on Earth's surface is based on reasoning and patterns (e.g., available transportation, location of resources and markets, individual preference, centralization versus dispersion).</td></tr>
<tr><td colspan="3">The Earth is vastly complex with each place on its surface having human and physical characteristics; to deal with this complexity people create regions.</td></tr>
<tr><td>• Every place is unique and can be described by its human and physical characteristics.</td><td>• Places are made distinctive by human activities that alter physical features (e.g., building houses, stores, highways).</td><td>• Places and regions serve as meaningful symbols for individuals and societies (e.g., Jerusalem as a holy city, Plymouth Rock, Vietnam Memorial).</td></tr>
<tr><td>• Human characteristics of a place are descriptions of the people who live in the place (e.g., language, religion, and housing).</td><td></td><td></td></tr>
</table>

Core Content for Social Studies Assessment

Geography

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
• Physical characteristics of a place include its landforms, climate, water, plants, and animals.	• Natural disasters such as earthquakes, floods, and hurricanes shape/alter places.	• Physical characteristics create advantages and disadvantages for human activities in a specific place.
• Places that have one or more characteristics in common, physical or human, can be viewed as regions (e.g., regions of Kentucky--Eastern and Western Kentucky Coal Fields, Bluegrass, Knobs, Pennyrile, Jackson Purchase; regions of the United States--South, Midwest, Appalachia; the Cornbelt; the Western Hemisphere; Wildcat Country).	• Places and regions change over time as new technologies, resources, and knowledge become available.	• Places and regions can be stereotyped. (e.g., all cities are dangerous and dirty; rural areas have no services like fire or police protection).
	• Regions can be different sizes and levels of formality (e.g., size can be as large as a hemisphere or as small as part of a city; formality can vary from a polticial boundary or coastline to an area that supports a sports team).	• People from different cultures or with different perspectives can define regions in different ways sometimes producing conflict (e.g., Middle East, Bosnia).
Patterns emerge as humans move, settle, and interact on Earth's surface.		
• Human populations gather in groups of different sizes and in different locations in the world.	• Human settlement occurs in different ways based on the culture and needs of settlers (e.g., Manifest Destiny, Japan's use of skyscrapers).	• Urban areas vary in size, arrangement, and function depending on factors such as site and situation, the development level of the country, and the presence or absence of nearby urban areas (e.g., regional market, commercial city, and megalopolis).
• Humans settle where there are adequate natural resources to meet their needs (e.g., areas with water, fertile land, protected land, transportation by water).	• Human populations may change and/or migrate because of factors such as war, famine, disease, competition for limited resources, and natural resource depletion.	• Human migration has major physical and cultural impact and can be the result of pressures or events that push populations from one place or pull them to another (e.g., push factors such as Irish potato famine or Vietnam War; pull factors such as climate or economic opportunity).
• Technology now allows humans to settle in areas previously inaccessible.	• Technology and resulting migration impact human and physical characteristics (e.g., melting pot or salad bowl, cultural mosaic, Chinatown, overcrowding, depletion of resources).	• Technology has facilitated the movement of goods, services, and populations; increased economic interdependence at all levels; and influenced development of centers of economic activity (e.g., adjacent to interstate such as I-64, I-65, I-75, major airports or the Ohio River).

Core Content for Social Studies Assessment

Geography

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
Human actions modify the physical environment and, in turn, the physical environment limits or promotes human activities.		
• People depend upon the physical environment for food, shelter, and clothing.		
• People adapt to or modify the environment to meet their needs (e.g., produce food, build shelter, make clothing).	• Technology assists human modification of the physical environment (e.g., damming a river, irrigating a desert, cooling or heating a living area).	• Human modification of the physical environment has possible global effects (e.g., a canal's impact on trade, clearing of rain forest reducing oxygen production, damming a river and its impact on climate).
• The physical environment both promotes and limits human activities (e.g., mountains as barriers or as protection, rivers used as boundaries or transportation routes).	• The physical environment both promotes and limits human activities (e.g., Silk Route, European exploration, ocean and landforms limiting Native American migration).	• Humans develop strategies to overcome limits of their physical environment (e.g., transportation, communication, technology).
		• Natural disasters may affect decisions relative to human activities (e.g., building codes for fault line, flood prone areas, migration).
• Natural resources may be classified as renewable or nonrenewable.	• Advances in technology help people replenish diminishing natural resources (e.g., synthetic fuels, solar power, recycling).	• Groups and individual perspectives impact the use of natural resources (e.g., mineral extraction, land reclamation, fresh water).
	• Individual perspectives impact the use of natural resources (e.g., mineral extraction, land reclamation, fresh water).	• Economic activities using a natural resource impact the value of the resource and the values can change over time (e.g., oil, coal, sugar, iron ore).

Core Content for Social Studies Assessment

History

History is the interpretation of events, people, ideas, and their interaction over time. In order for students to understand the present and make plans for their future, they must understand the past.

Academic Expectation 2.20: Students understand, analyze, and interpret historical events, conditions, trends, and issues to develop historical perspective.

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
	History is an account of human activities which is interpretive in nature.	
• Accounts of historical events sometimes are influenced by the perceptions of people and passing of time.	• Different perspectives result in different interpretations of historical events (e.g., gender, ethnic groups, nationalities, age, economic status).	• Interpretations of history are subject to change as new information is uncovered.
• History is understood by using a variety of primary and secondary sources and tools (e.g., artifacts, diaries, time lines).	• Primary sources, secondary sources, artifacts, and time lines are essential tools in the study and interpretation of history.	• Primary sources allow individuals to experience history from the perspectives of people who lived it.
• Most historical events have multiple causes.	• History is a series of connected events whereby one event will result in another event occurring (cause-and-effect, relating the past to the present).	• Cause-and-effect relationships can be analyzed by looking at multiple causation, the importance of the individual in history, the influence of ideas and beliefs, and the role of chance.

NOTE: The next two assertions for history focus on United States and World History and align with the Program of Studies for Kentucky Schools, P-12. The individual bullets ***do not*** *align across the page as they do in the other areas of the Core Content for Social Studies Assessment. Instead, they reflect a division of historical periods among the three grade levels as described below.*

Elementary School	Middle School	High School
The study of history at this level includes an overview of Kentucky and the United States from beginning to present day.	The study of history at this level includes U.S. History to Reconstruction, and World History to 1500.	The study of history at this level includes U.S. History from Reconstruction to present day, and World History from 1500 to the present.

The history of the United States is a chronicle of a diverse people and the nation they formed.

Elementary (Assessment at Grade 5)

- Native American cultures, both in Kentucky and the United States, had similarities and differences (e.g., similarities--gender roles, family organization, religion, values; differences--language, shelter, tools, foods, and clothing).
- People explored and settled America and Kentucky for multiple reasons (e.g., freedoms, opportunities, fleeing negative situations).
- The way we live has changed over time for both Kentuckians and Americans because of differences in many areas (e.g., communication, technology, homes, transportation, recreation, traditions).
- The study of U.S. History is categorized into broad historical periods and eras. The titles of these periods summarize the pivotal events of the time (e.g., Land and People before Columbus, Age of Exploration, Colonization, War for Independence, The Young Republic, Westward Expansion, Industrialism, the Twentieth Century).
- Symbols, slogans, monuments/buildings, and patriotic songs, poems, and passages are used to describe or illustrate important ideas and events in Kentucky and American history (e.g., state and national flags, mottos, symbols, the Pledge of Allegiance).
- The United States, Canada, and Mexico have similarities and differences (e.g., nations of immigrants, colonial backgrounds, diverse populations, language, religion, economy, government, family).

Middle Level (Assessment at Grade 8)

- America's diverse society began with the "great convergence" of European, African, and Native American people beginning in the late 15th century.
- The values and institutions of European life took root in the colonies (e.g., rise of individualism, colonial governments, Puritanism, the Great Awakening, mercantilism).
- The ideals of equality and personal liberty were a motivation for the American Revolution and proved instrumental in forging a new nation (e.g., Declaration of Independence, Constitution of the United States).
- The Industrial Revolution, the rapid expansion of slavery, and the westward movement changed the lives of Americans and led to regional tensions.
- Political, social, economic, and cultural differences among sections of the U.S. resulted in the American Civil War (e.g., slavery, tariffs, industrialism vs. agraranism, union vs. states' rights, Emancipation Proclamation).

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High School (Assessment at Grade 11)

- Disagreements over how Reconstruction should be approached and its various programs led to conflict, constitutional crisis, and limited success.
- The rise of big business, factories, mechanized farming, and the labor movement transformed the lives of Americans.
- After the Civil War, massive immigration and United States foreign policies created new social patterns, conflicts, and ideas about national unity amid growing cultural diversity.
- Modern America emerges from 1890-1930 with the Progressives and others addressing problems of industrial capitalism, urbanization, and political corruption.
- The Great Depression, New Deal policies, and World War II transformed America socially and politically at home and reshaped its role in world affairs.
- After World War II, America can be described by economic boom; social transformation reflected in the struggles for racial and gender equality, and the extension of civil liberties; and conflict over political issues (e.g., Civil Rights Movement, U.S. involvement in Vietnam, "I Have a Dream" speech by Martin Luther King, Jr.).
- In the 20th century, the United States has assumed a role in the global community to maintain and restore world peace (e.g., League of Nations, United Nations, Col War politics, Persian Gulf War).

Core Content for Social Studies Assessment

History

The history of the world is a chronicle of human activities and human societies.

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
World History is not assessed at the elementary level.	• Archaeological evidence describes the earliest human communities as hunter-gatherers who adapted to a variety of environments in Africa, the Americas, and western Eurasia. • Advances in agriculture and animal domestication led to the development of early civilizations (e.g., Egypt, Mesopotamia, Indus Valley, China, Mesoamerica) which made contributions to medicine, government, religion, and the development of new technologies. • The rise of classical civilizations and empires and the development of major religions had long lasting impacts on the world (e.g., Greece, Rome, Aryan conquest, Shang and Chou dynasties, Judaism, Christianity, Buddhism, Hinduism, Islam). • After being battered by multiple invaders, Western Europe developed feudalism to restore political, social, and economic order. • During the Middle Ages, numerous civilizations outside of Western Europe experienced golden ages (e.g., Byzantine, Islamic, Kush, Mogul, Yamato Dynasty of Japan). • An Age of Exploration by Europeans led to extensive contact among once isolated cultures and brought about massive political, economic, and social change.	• During the Renaissance and Reformation humans began to rediscover the ideas of the Classical Age and to question their place in the universe. • New ideas and technologies led to an Age of Exploration by Europeans which brought great wealth to the absolute monarchies that developed during the age. • An Age of Revolution brought about changes in science, thought, government, and industry that shaped the modern world. • Nationalism, militarism, and imperialism led to world conflicts, economic booms and busts, and the rise of totalitarian governments. • The second half of the 20th century is characterized by rapid change and new challenges (e.g., population growth, dimishing natural resources, human rights issues, technological and scientific advances).

Core Content for Arts and Humanities Assessment

Version 1.0

Core Content for Arts and Humanities Assessment

" Arts education benefits the student because it cultivates the whole child, gradually building many kinds of literacy while developing intuition, reasoning, imagination, and dexterity into unique forms of expression and communication. This process requires not merely an active mind but a trained one. An education in the arts benefits society because students of the arts gain powerful tools for understanding human experiences, both past and present. They learn to respect the often very different ways others have of thinking, working, and expressing themselves. They learn to make decisions in situations where there are not standard answers. By studying the arts, students stimulate their natural creativity and learn to develop it to meet the needs of a complex and competitive society. And, as study and competition in the arts reinforce one another, the joy of learning becomes real, tangible, and powerful." [1]

Humanities can be defined as the study of the beliefs, thoughts, values, traditions, and customs of humankind as reflected in history, philosophy, visual art, music, dance, and theatre. It fosters an inquiry into the connections between the arts and their historical and cultural significance. The study of humanities promotes an examination of universal questions, as well as an investigation into the nature of creativity.

Education in **dance,** which has been an intergral part of human history, is important if students are to gain a broad cultural and historical perspective. Students examine the role and meaning of dance in diverse social, cultural, and historical contexts through a variety of dance forms. Experience with dance of many cultures helps students to understand the cultural lives of others.

Experiences with **music** contribute to the quality of every student's life. Musical works are a reflection of human thought and emotion in respect to history and culture. In primary through high school music programs, students perform, create, and respond to the intrinsic qualities of sound. It is through interaction with the sounds and fundamentals of music that students develop musical knowledge and skills, solve problems, and are provided an opportunity to express individual thoughts and emotions.

Studying the **visual arts** helps the students communicate ideas, solve problems, and express feelings through the creation of art works, by viewing, writing, talking, and thinking about the visual world around them. To meet the National Standards for Arts Education and Kentucky's Academic Expectations, students need to learn vocabularies, concepts, and art processes using a variety of media and techniques. In addition, they must be able to analyze their own work and the works of others using accepted criteria in defending their positions and artistic choices. In order to be truly educated in this global community, Kentucky students must study their own rich culture and appreciate the cultures of others.

In **theatre** , the artists create an imagined world about human beings. To help students in grades P-8 develop theatre literacy, it is important that they learn to see the created world of theatre through the eyes of the playwright, actor, designer, and director. In grades 9-12, students view and construct dramatic works as metaphorical visions of life that embrace varied interpretations.

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[1] From National Standards for Arts Education, page 132. Copyright (c) 1994 by Music Educators National Conference. Used by permission. The complete National Arts Education Standards are available from Music Educators National Conference, 1806 Robert Fulton Drive, Reston,VA 22091.

Finally, this document remains in draft form as we work to increase attention toward appreciation of the arts and to assure a broader focus on all the basic arts processes - creative expression and production/ performance; perception; analysis and criticism; aesthetics; historical, cultural, and social contexts in our document. These arts processes are recommended for use in arts assessment in the *National Standards for Arts Education, Arts Education Assessment and Exercise Specifications* published by The College Board for the National Assessment Governing Board, and the publication " A Summary of State Arts Consultants' Framework" by the National Association of State Arts Consultants. The input and cooperation of arts professionals as well as other assessment experts will be sought as we move toward a comprehensive arts assessment and a final Core Content for an Arts and Humanities Assessment document.

DRAFT
11/22/96

Core Content for Arts and Humanities Assessment

Dance

Academic Expectation 2.22: Students create works of art and make presentations to convey a point of view.
Academic Expectation 2.23: Students analyze their own and others' artistic products and performances using accepted standards.
Academic Expectation 2.24: Students have knowledge of major works of art, music, literature, and appreciate creativity and the contributions of the arts and humanities.

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)

The basis of dance is the combination of locomotor and non-locomotor movements.

Movement	**Movement**	
• Locomotor movements involve moving the feet. The following eight (8) will be assessed: walk, run, hop, jump, leap, slide, skip, gallop. • Six (6) non-locomotor movements involve moving the body with the feet in place. Three (3) will be assessed: bend, stretch, twist.	• Eight (8) locomotor movements are combined to create dance steps (see grade 5). The following will be assessed: step-hop, waltz, two-step, grapevine. • Six (6) non-locomotor movements are used in dance. Three (3) will be assessed: swing, push, and pull.	

Dance/movement is a natural activity that becomes an artistic expression when structured and formed by the elements and principles of dance using compositional forms.

Elements of Dance	**Elements of Dance**	**Elements of Dance**
• Three (3) elements of dance are used describe how body movements create dance. The elements to be assessed are:	• Three (3) elements of dance are used to describe how body movements create dance. The elements and their components follow:	• Three (3) elements of dance combine to define dance movement. The elements and their components follow:
Space level: high, medium, low direction: up, down, backward, forward right, left	Space shape: curved, straight, angled pathways: curved, straight, zigzagged	Space shape: curved, straight, angled pathways: curved, straight, zigzagged
Time tempo: fast, slow	Time beat: steady rhythm: combination of long and short sounds	Time beat: steady rhythm: combination of long and short sounds
	Force (movement quality) energy: sharp, smooth weight: heavy, light flow: free, bound	Force (movement quality) energy: sharp, smooth weight: heavy, light flow: free, bound

Core Content for Arts and Humanities Assessment

Dance continued

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
Principles of Composition	**Principles of Composition**	**Principles of Composition**
• Dance consists of sequences with a beginning, middle, and end.	• Dance uses different movement phrases (brief sequences of related movements) to show variations. The following will be assessed: A is a one- part movement phrase in a specific tempo. AB is a two- part movement phrase with B having a different tempo. ABA is a three- part movement phrase with A being repeated.	• Dance uses different movement phrases to show variations. The following will be assessed: Call and response -The call sends a message through movement and the response is the reply. Canon - is repetition of movement in a specific sequence. Rondo - alternates an original and new movement phrase. Narrative - tells a story through movement.

Academic Expectation 2.25: **In the products they make and the performances they present, students show that they understand how time, place, and society influence the arts and humanities such as language, literature, and history.**

Academic Expectation 2:26: **Through the arts and humanities, students recognize that although people are different, they share some common experiences and attitudes.**

Different cultures express human needs and experiences through dance.

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
Purposes of Dance	**Purposes of Dance**	**Purposes of Dance**
• Dances have a variety of purpose such as recreation.	• Dances have a variety of purposes such as ceremonial.	• Dances have a variety of purposes such as artistic expression.
Historical and Cultural Awareness	**Historical and Cultural Awareness**	**Historical and Cultural Awareness**
• There are similarities and differences in elements and principles of composition among forms of dance such as folk.	• There are similarities and differences in the elements and principles of composition among forms of dance such as square and line dancing. • Dances of various cultures and historical periods differ in steps, movement styles, and costumes.	• There are similarities and differences in the elements and principles of composition among forms of dance such as ballet, social, and ballroom. • Dances express similar and different themes in various cultures.

Core Content for Arts and Humanities Assessment

Drama/Theatre

Academic Expectation 2.22: **Students create works of art and make presentations to convey a point of view.**
Academic Expectation 2.23: **Students analyze their own and others' artistic products and performances using accepted standards.**
Academic Expectation 2.24: **Students have knowledge of major works of art, music, literature, and appreciate creativity and the contributions of the arts and humanities.**

Drama/Theatre in all its forms both reflects and affects life. Therefore, students should learn about the dramatic and production elements and how they are shown in performances and texts.

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
Creative Dramatics	**Creative Dramatics**	**Creative Dramatics**
• Short dialogues, involving more than one person, are used to express thoughts, feelings, and actions in storytelling and role-playing.	• Short dialogues, involving more than one person, and monologues (one person) are used to express thoughts, feelings, and actions in pantomime.	• Dialogues and monologues are used to express thoughts, feelings, and actions in improvisation.
Dramatic Elements	**Dramatic Elements**	**Dramatic Elements**
• Plot and character are two elements of dramatic structure. Plot or storyline, includes a beginning, middle, and end with a problem, complications, and a solution. Character is a person, animal, or entity with specific distinguishing characteristics.	• Theme and language provide additional information about the plot and characters in a drama or script.	• Sound and spectacle (visual) further define the plot, character, theme, and language.
Production Elements	**Production Elements**	**Production Elements**
• Simple scenery, simple costumes, and simple props are used to support plot and character in drama.	• Scenery, costumes, and props assist in creating an atmosphere appropriate for the drama. • Theatrical productions are complex activities which require specific jobs to address the various aspects of productions. Some of these jobs include actor, director, playwright, producer, and designers (costumes, scenery, and make-up).	• Basic sound, lighting effects, and make-up enhance the scenery, costumes, and props, contributing to the total production of the drama. • Sound and lighting designers along with stage, publicity, and prop managers work to make a production more effective and efficient. While each job (including those listed at the middle level) has individual responsibilities, they are interrelated.

Drama/Theatre continued

Academic Expectation 2.25: In the products they make and the performances they present, students show that they understand how time, place, and society influence the arts and humanities such as language, literature, and history.

Academic Expectation 2.26: Through the arts and humanities, students recognize that although people are different, they share some common experiences and attitudes.

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
	Different cultures express human needs and experiences through theatre.	
	Purposes of Theatre	**Purposes of Theatre**
	• Various purposes of theatre include entertainment, cultural transfer, and personal expression.	• Various purposes of theatre include enlightenment and educational.
	Historical and Cultural Awareness	**Historical and Cultural Awareness**
	• There are similarities and differences in the dramatic and production elements of theatre from various periods in history such as Classical Greek and Elizabethan.	• There are similarities and differences in the dramatic and production elements in theatre from various periods in history such as Modern/Contemporary.

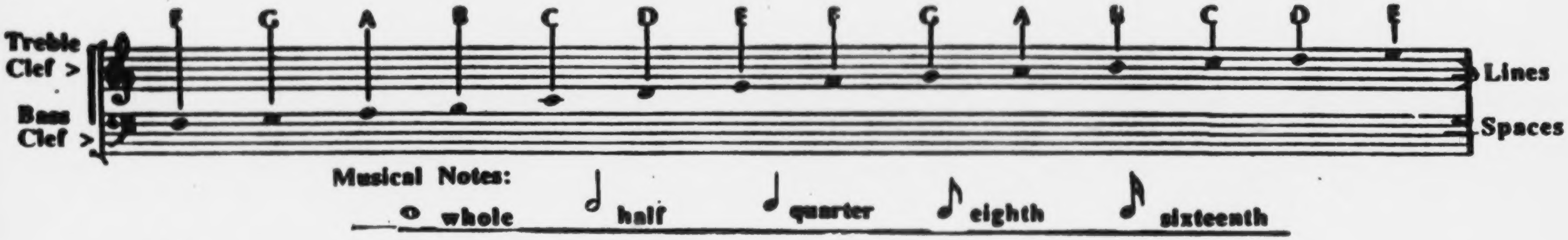
Core Content for Arts and Humanities Assessment

Music

Academic Expectation 2.22: Students create works of art and make presentations to convey a point of view.
Academic Expectation 2.23: Students analyze their own and others' artistic products and performances using accepted standards.
Academic Expectation 2.24: Students have knowledge of major works of art, music, literature, and appreciate creativity and the contributions of the arts and humanities.

Music provides a means of effective communication and encourages creative expression. The elements of music give structural organization to this art form.

Elementary (Assessment at Grade 5)	**Middle Level (Assessment at Grade 8)**	**High School (Assessment at Grade 11)**
Elements of Music	**Elements of Music**	**Elements of Music**
• Regardless of the musical style or the origin, music shares several common elements. The elements and their components to be assessed follow:	• The elements and their components to be assessed follow:	• The elements and their components follow:
Rhythm: Rhythm is the combination of sounds and silences in the same or differing lengths. Rhythmic notation symbols show the rhythmic pattern of music (e.g., bar lines). Notation symbols and time signatures to be assessed follow:	Rhythm: Rhythmic notation symbols show the rhythmic pattern of music. Symbols to be assessed follow:	Rhythm: Rhythmic notation symbols show the rhythmic pattern of music. Symbols to be assessed follow:
• *Meter* is a rhythmic measure of a certain number of beats.	• *Meter* is a rhythmic measure of a certain number of beats.	• *Meter* is a rhythmic measure of a certain number of beats.
• *Note value (duration): The time signatures to be assessed are* 2/4, 3/4 and 4/4. In time signatures, the top number tells how many beats per measure and the bottom number tells which note gets the beat.	• *Note value (duration): The* same time signatures will be assessed as in elementary with the addition of the sixteenth note.	• *Note value (duration):* The time signatures to be assessed are 6/8, 9/8 and 12/8.
Rests: whole	*Rests*: half and quarter	*Rests:* eighth and sixteenth



Elementary (Assessment at Grade 5)

Melody

- Melodic notation symbols determine melodic patterns of music. The following aspects of notation will be assessed.
- Lines and spaces have specific meaning on a musical staff.

  The musical staff is a set of five lines and four spaces on which music is notated. (see graphic at top of page) *Clefs* indicate *pitch* designation for the lines and spaces of the musical staff. The treble clef will be assessed.
- Melodic direction can be determined by the placement of notes on lines and spaces. Musical notes on the lines and spaces have unique tones as they move up, down, leap, skip, or stay in the same place on the musical staff.

Middle Level (Assessment at Grade 8)

Melody

- The use of the following aspects of notation will be assessed:
- Lines and spaces have a specific meaning on a musical staff.

Clef: Bass clef

Harmony

- The element of harmony in music is obtained by combining tones/parts simultaneously such as: Soprano(S), Alto(A), Soprano-Alto-Tenor(S,A,T)
- Unison occurs in music when persons sing or play the same note simultaneously.
- Melody can be differentiated by musical chords as found in the C,F, G, major chords.

High School (Assessment at Grade 11)

Melody

- The use of the following symbols will be assessed :
- Lines and spaces have a specific meaning on a musical staff.

Clef : Grand staff

Harmony

- The element of harmony in music is obtained by combining tones/parts simultaneously such as: Soprano(S), Alto (A), Tenor(T), and Bass(B), (S, A, T, B).
- Melody can be differentiated by musical chords as found in the major keys of C, F, G, D, B flat, A flat, E flat.

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Music continued

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
Form • Music can be expressed in various forms (designs). The following forms will be assessed: AB, rounds	Form • Music can be expressed in various forms (designs). The following form will be assessed: ABA	Form • Music can be expressed in various forms (designs). The following form will be assessed: Rondo
A - is a musical phrase. **AB** - two musical phrases with **B** as a contrasting phrase; **Rounds** - when the same melody is sung by two or more groups simultaneously	**ABA** - three phrases with A being repeated and **B** as a contrasting phrase)	Rondo-begins with an original phrase and alternates with repeating and contrasting phrases such as **ABACA**. (C is another contrasting phrase).
Timbre (Tone Color) • A variety of instruments are used in music. Families of instruments can be identified visually or by their timbre (unique sounds or tone color). The families to be assessed are strings, brass, and percussion instruments (rhythm instruments and simple drums).	Timbre (Tone Color) • The families to be assessed are woodwinds and percussions (tuned and untuned) and American folk instruments in those families.	Timbre (Tone Color) • The families to be assessed are all orchestral instruments in the four families plus bluegrass and American folk instruments.
• The human voice is an instrument.	• The human voice range (highest to lowest) varies from person to person.	• The human voice can be compared with other instruments according to the quality of tones produced and the method of sound production.
	• Acoustic and electronic instruments can be identified visually (e.g.,piano, midi-keyboard).	• Acoustic and electronic instruments can be identified aurally (e.g., piano, midi-keyboard).
Tempo • Musical pieces are produced in different tempos such as fast or slow.	Tempo • Musical pieces are produced in different tempos such as allegro (very fast), moderato (moderate), largo (slow to very slow).	Tempo • Musical pieces are produced in different tempos such as ritardando (slowing down), accelerando (speeding up), presto (faster than allegro).

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Music continued

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
Dynamics	Dynamics	Dynamics
• Musical pieces are made more entertaining and interesting by using varied dynamics (degrees of loudness and softness) in a musical selection.	• Musical pieces are made more entertaining and interesting by using varied dynamics within a musical selection such as forte (loud), piano (soft), crescendo (increasing loudness).	• Musical pieces are made more entertaining and interesting by using varied dynamics within a musical selection such as descrescendo (reducing loudness), fortissimo (very loud), pianissimo (very soft).

Academic Expectation 2.25: **In the products they make and the performances they present, students show that they understand how time, place, and society influence the arts and humanities such as language, literature, and history.**

Academic Expectation 2.26: **Through the arts and humanities, students recognize that although people are different, they share some common experiences and attitudes.**

Different cultures address human needs in similar and different ways through their expression in music.

Historical and Cultural Awareness	Historical and Cultural Awareness	Historical and Cultural Awareness
• There are similarities and differences in the elements of music as expressed through various purposes. Cultures to be assessed: Native American, West African, and Early American.	• There are similarities and differences in the elements of music as expressed through various purposes. Cultures to be assessed : Early American, Asian, Western European.	• There are similarities and differences in the elements of music as expressed through various purposes. Cultures to be assessed: Latin American, Eastern European, Modern American.
• There are similarities and differences (e.g., instrumentation) among musical styles (the particular character of a musical work) such as American folk, pop, traditional game, and work songs.	• There are similarities and differences (e.g., instrumentation, dynamics) among musical styles (the particular character of a musical work and a performance) such as spirituals, ballads, and rounds.	• There are similarities and differences (e.g., instrumentation, dynamics, presentation) among musical styles (the particular character of a musical work, performance, or a historical period). such as blues, gospel, country, bluegrass, and Broadway musicals.

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Core Content for Arts and Humanities Assessment

Academic Expectation 2.25: **In the products they make and the performances they present, students show that they understand how time, place, and society influence the arts and humanities such as language, literature, and history.**

Academic Expectation 2.26: **Through the arts and humanities, students recognize that although people are different, they share some common experiences and attitudes.**

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
	Historical Periods • Common experiences and attitudes are better understood by studying music from various periods. The ability to identify music from the following periods will be assessed: Classical and Ancient.	**Historical Periods** • Common experiences and attitudes are better understood by studying music from various periods. The ability to identify and describe music from the following periods will be assessed: Renaissance, Romantic, and Modern/Contemporary.

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Core Content for Arts and Humanities Assessment

Visual Arts

Academic Expectation 2.22: **Students create works of art and make presentations to convey a point of view.**
Academic Expectation 2.23: **Students analyze their own and others' artistic products and performances using accepted standards.**
Academic Expectation 2.24: **Students have knowledge of major works of art, music, literature, and appreciate creativity and the contributions of the arts and humanities.**

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
The elements-- line, shape, color, value, texture, space, and form--are used to create works of art.		
Elements of Art	**Elements of Art**	**Elements of Art**
• Visual Art is organized and structured by the elements of art. The elements and their components to be assessed follow:	• Visual Art is organized and structured by the elements of art. The elements and their components to be assessed follow:	• Visual Art is organized and structured by the elements of art. The elements and their components are combined to create works of art. All of the elements will be assessed as they relate to specific works of art.
Line: a continuous mark created by a moving point (curve, straight [diagonal, horizontal] zigzag, broken) Shape: a two- dimensional element which has height and width (circle, square, triangle, rectangle)	Form: a three-dimensional element which has height, width, and depth Texture (Actual and Implied): rough, smooth, soft Space: the open parts between, inside, and around shapes *Perspective:* vanishing point and horizon line Value: the degree of lightness and darkness and the infinite varieties of grays	Space: the open parts between inside, and around shapes (positive and negative) *Perspective:* one point, two point
Color : the results of the reflection or absorption of light by a surface	Color:	Color:
hue: the name of the color	*value:* lightness or darkness of a hue made by adding white or black	*intensity*: quality of brightness and purity of hue

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Visual Arts continued

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
Color Theory - Different hues and groups of hues are used to create artwork. The following groups will be assessed: *Primary hues*: red, yellow, blue *Secondary hues*: orange, green, violet *Groups of hues:* warm, cool, and neutral	*Color Theory* - Different hues and groups of hues are used to create artwork. The following groups will be assessed: *Intermediate hues*: red-orange,yellow-orange, blue-green, yellow-green, red-violet, blue-violet *Monochromatic hues:* use of a single hue with the neutral: (e.g., black, white, gray) *Shades and tints:* hue with white or black	*Color Theory* - Different hues and groups of hues are used to create artwork. The following groups will be assessed: *Complementary hues:* colors directly opposite each other on the color wheel (red/green, orange/blue, yellow/violet) *Analogous:* colors next to each other on the color wheel (red, red-orange, orange, yellow-orange, blue, blue-green, green)

The combination of the elements of art into an organized whole requires artists to use the principles of design--pattern, balance, repetition, contrast, emphasis, proportion,,rhythm, and unity.

Principles of Design	**Principles of Design**	**Principles of Design**
• The principles of design are the rules by which artists use the elements to create works of art. The following two (2) principles will be assessed as to how they create artwork: Pattern: the repetition of shapes, lines, or colors used in creating design Balance: arrangement of the elements of art so that one side of the work is not heavier or does not overpower the other *Symmetrical :* one side of the composition is the exact mirror image of the other	• The principles of design are the rules by which artists use the elements to create works of art. The following four (4) principles will be assessed as to how they create artwork: Repetition: the repeating of a set of shapes, lines, or colors over and over again Balance: *Asymmetrical:* two sides that are different but in visual balance Contrast: stressing differences within/between elements of art Emphasis: attention to certain areas or objects in a work of art (focal point)	• The principles of design are the rules by which artists use the elements to create works of art. The following three (3) principles will be assessed as to how they are used in creating and evaluating artwork: Proportion: the relationship of the size of one part to another or to the whole Rhythm: visual movement created by the repetition of elements Unity: all visual elements combine to create a feeling of wholeness and completeness

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Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
	A variety of media techniques and processes are used to create visual art forms.	
Variety of Art Forms • Visual art is presented and produced in various forms. The characteristics of the following forms will be assessed: Two-dimensional has height and width. (drawing, fabric design, collage)	**Variety of Art Forms** • Visual art is presented and produced in various forms. The characteristics of the following forms will be assessed: Two-dimensional: drawing, fabric design, photography, painting Three-dimensional: ceramics	**Variety of Art Forms** • Visual art is presented and produced in various forms. The characteristics of the following forms will be assessed: Two-dimensional: printmaking, painting computer, photography Three-dimensional: sculpture, architecture
Variety of Media and Techniques • A variety of media and techniques are used to create a work of art. The characteristics of the media and techniques below will be assessed: Media: a particular material used to produce art (pencil, crayon, paint, fabric, yarn,) Techniques: sketching and weaving	**Variety of Media and Techniques** • A variety of media and techniques are used to create a work of art using a variety of subject matter (e.g., still-life, portrait, landscape, historical, narrative). The knowledge of media and the techniques below will be assessed. Media: clay, paint, pencil, ink, fibers, and pastels Techniques: shading, modeling, stitchery, and painting techniques	**Variety of Media and Techniques** • A variety of media and techniques are used to create a work of art using a variety of subject matter (e.g., still-life, portrait, landscape, abstract). The knowledge of media and the techniques below will be assessed. Media: stone, metal, tempera, water color, and acrylic/ oil Techniques: hatching, wood sculpture techniques and painting techniques

Core Content for Arts and Humanities Assessment

Visual Arts continued

Academic Expectation 2.25: **In the products they make and the performances they present, students show that they understand how time, place, and society influence the arts and humanities such as language, literature, and history.**

Academic Expectation 2.26: **Through the arts and humanities, students recognize that although people are different, they shar some common experiences and attitudes.**

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
Different cultures express human needs and experiences through art.		
Purposes of Art • Works of art have a variety of purposes such as personal expression.	**Purposes of Art** • Works of art have a variety of purposes such as aesthetics and ritual.	**Purposes of Art** • Works of art have a variety of purposes such as educational and vocational.
Historical and Cultural Awareness • There are similarities and differences in the use of the elements and principles of art in different cultures. The following cultures and periods will be assessed according to their similarities and differences: Cultures: Native American, Folk/ Appalachian, West African	**Historical and Cultural Awareness** • There are similarities and differences in the use of the elements and principles of art in different cultures. The following cultures and periods will be assessed according to their similarities and differences: Cultures: Western European, Asian, Early American Periods: Ancient, Renaissance and Impressionist	**Historical and Cultural Awareness** • There are similarities and differences in the elements and principles of art as expressed through various styles and purposes. The following cultures and periods will be assessed: Cultures: Modern American , Latin American, Eastern European Periods: Ancient, Classical, Medieval, Modern/Contemporary, Impressionist

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Core Content for Arts and Humanities Assessment

Academic Expectation 2.24: **Students have knowledge of major works of art, music, literature, and appreciate creativity and the contributions of the arts and humanities.**

Academic Expectation 2.25: **In the products they make and the performances they present, students show that they understand how time, place, and society influence the arts and humanities such as language, literature, and history.**

Academic Expectation 2.26: **Through the arts and humanities, students recognize that although people are different, they share some common experiences and attitudes.**

Arts of a certain style and from a specific time period share common characteristics demonstrating connections among the various disciplines.

High School (Assessment at Grade 11)

Major Movements/Periods/Styles of Western Culture ***Through revision this contributors' list will be enhanced to reflect all cultures.*** Major movements/periods/cultures share basic qualities across the arts (literature, music, visual arts, theatre, and dance).	Some major contributors identified with movements, periods, styles		
	Visual Art	**Writing**	**Music**
Classicism Characteristics: tradition, structure, reason, universality moderation (Ancient Greeceand Rome)	Greek and Roman sculpture, architecture	Aristotle, Homer, Plato	Pythagoras, (music theory)
Medieval Characteristics: emotional, stylized, religious, symbolic	Romanesque style, Gothic style, Giotto		Gregorian Chant
Renaissance Characteristics: a revival of Greek thought and practices (listed above) that came after the Middle Ages	Leonardo daVinci, Michelangelo	Machiavelli, Shakespeare	Palestrina, DesPrez
Baroque Characteristics: ornate, contrast, movement, diverse, virtuosity, individualism, emotional, dramatic	Caravaggio, Rembrandt	Spenser, Cervantes	Handel, Bach

Core Content for Arts and Humanities Assessment

High School

Major Movements/Periods/Styles of Western Cultures ***Through revision this contributors' list will be enhanced to reflect all cultures.*** Major movements/ periods/ cultures share basic qualities across the arts (literature, music, visual arts, theatre, and dance).	Some major contributors identified with movements, periods, style			
	Visual Art	**Writing**	**Music**	**Dance**
Neo-Classical Characteristics: nationalistic, return again to Greek thought (see Renaissance), Age of Reason or Enlightenment. This is known as the *Classical* period of Music.	Jacques Louis David	Milton, Swift	Mozart, Beethoven	Court Ballet
Romanticism Characteristics: freedom, emotion, spontaneity, individuality, emphasis on nature, symbolic	Constable, Goya, Delacroix	Byron, Shelley, Keats, Wordsworth	Tchaikovsky, Brahms, Chopin, Mendelssohn, Verdi	Petipa, Fokine
Realism Characteristics: truth, representational	Courbet, Hopper, W. Homer		Strauss, Puccini	
Impressionism/Post-Impressionism Characteristics: spontaneity, immediacy, de-emphasized form, light, color, vibrant, individual	Monet, vanGogh, Degas, Rodin, Cezanne, Cassatt	S. Crane, Conrad	Debussy, Bizet	Nijinsky, Duncan

Core Content for Arts and Humanities Assessment

High School

Major Movements/ Periods/Styles of Western Culture Major movements/periods/ cultures share basic qualities across the arts (literature, music, visual arts, theatre, and dance).	Some major contributors identified with movements, periods, styles			
	Visual Art	**Writing**	**Music**	**Dance**
Modernism/Contemporary Characteristics: abstract, subjective, psychological, experimental	Picasso, Matisse, O'Keeffe, Frank Lloyd Wright	Faulkner, Wright, Giovanni Angelou	Bernstein, Copland, Gershwin, Ellington	Baryshnikov, Graham, Ailey, Bill "Bojangles Robinson

Humanities continued

Historical and Cultural Awareness	Historical and Cultural Awareness
Middle Level (Assessment at Grade 8)	**High School (Assessment at Grade 11)**
Various cultures are connected by common themes as they are expressed in music, history, literature, visual arts, dance, and theatre. Common themes are: • Human Beings and Nature • Coming of Age: Rites of Passage	Various cultures are connected by common themes as they are expressed in music, history, literature, visual arts, dance, theatre, and philosophy. Common themes are: • Human Beings and Society • Human Beings and Religion • Tragedy and Comedy
Diverse cultural influences contribute to the foundation of various civilizations through literature, music, visual arts, theatre, dance, and history. Recognition of works of art from the following cultures will be assessed: Specific Cultures: • West African • American (Folk and Appalachian) • Native American • Asian	Diverse cultural influences contribute to the foundation of various civilizations through literature, music, visual arts, theatre, dance, philosophy, and religion. Recognition and comparison of works of art from the following cultures will be assessed: Specific Cultures: • North African • Eastern European • Latin American • Modern American

Core Content for Practical Living Assessment

Version 1.0

Core Content for Practical Living Assessment

Learning and academic achievement are closely tied to the physical, mental, emotional, and social development of the child. Therefore, concepts taught in practical living classes strongly support the mission of education. Practical living studies include instruction in health, home economics, and physical education. The academic expectations address the development of health and fitness habits and behaviors, consumer and resource management, and other concepts which will support student growth, development, and achievement. Because the concepts in practical living studies deal with authentic life issues, they are easily integrated into instruction in other disciplines; for example, literature and social studies provide excellent avenues for students to study relationships among people.

The purpose for teaching and assessing practical living studies is to make a lasting difference in the lives of students which positively affects their physical, mental, emotional, and social well-being. If this is to occur, parents and community members, who can provide a basis for positive health decisions and guidance, must be encouraged to become involved in the design of curriculum which focuses on these concepts. Further, students must be given opportunities to discover and apply knowledge in ways that promote the development of thinking and problem-solving skills and the ability to transfer knowledge. These skills also will be invaluable to students as they participate in the KIRIS assessment.

The Core Content for Assessment of Practical Living Studies indicates what can be expected on the KIRIS assessments. However, this document is not intended to represent the full scope of the health, home economics, or physical education curricula. There are concepts traditionally taught in health and home economics education that are not and will not be assessed on KIRIS; consequently, they are not included in these core content for assessment. Curriculum decisions are made at the local school and school district levels based on the needs, interests, and concerns of the community as well as the academic expectations. The absence of traditionally taught content in this document does not imply that those concepts should be excluded from the local curriculum.

Limitations in the current system of state assessment prevent measurement of performance of psychomotor skills; future forms of the assessment will allow for this type of evaluation. However, it is important for schools to ensure that students are educated and assessed in all areas of physical activity.

Sources used to develop these content guidelines for assessment are the

- National Health Education Standards, Joint Health Education Standards Committee;
- Moving into the Future, National Standards for Physical Education, National Association for Physical Education and Sports;
- Family Life and Parenting Curriculum, Kentucky Department of Education;
- Home Economics Concepts: A Base for Curriculum Development, American Home Economics Association;
- Motor Development Learning Description, Kentucky Early Learning Profile, Kentucky Department of Education
- Transformations: Kentucky's Curriculum Framework, Kentucky Department of Education;
- The ABC's to Comprehensive School Health Education, Health Kentucky, Comprehensive School Health Education Committee

The format of presentation on the following pages shows how concepts taught at the primary level progress in difficulty and complexity through grade 12. The bullets are aligned to show this progression. While there appears to be a continuum, it is important to note that the format does not imply linearly related concepts.

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Core Content for Practical Living Assessment

Academic Expectation 2.29: Students demonstrate skills that promote individual well-being and healthy family relationships.

Healthy family relationships are critical to maintaining the family unit which historically has been considered the fabric of society. While parents are the primary source from whom their children learn the skills to act responsibly in relationships, the community and the school play a supportive role. Individuals who are confident in their knowledge of themselves, the relationships and interactions which occur within families and other interdependent groups, and apply the skills of developing and maintaining healthy relationships are better able to participate in a healthy family life, nurture and support others, and successfully manage their changing life responsibilities.

Interactions in groups contribute to mental and emotional well-being.
This concept is closely connected to Academic Expectation 2.32.

Elementary (Assessment at Grade 5)	**Middle Level (Assessment at Grade 8)**	**High School (Assessment at Grade 11)**
• How individuals and groups are interdependent	• Personal rights and responsibilities of individuals within groups (e.g., families, ball teams)	• Changing roles, responsibilities, and skills needed by individuals throughout the life cycle
	• Conflict resolution strategies (e.g., problems identification, effective communication, mediation)	
• Contributions of rules to effective functioning of interdependent groups (e.g., families, ball teams, classrooms)	• Contributions of respect, rules, communication, and cooperation to the effective functioning of groups	• Behaviors which show respect and responsibility to self and others (e.g., open and honest communication, completing commitments)

Reproduction and sexuality are issues of concern for individual well-being and healthy relationships.
This concept is closely connected to Academic Expectation 2.32.

Elementary (Assessment at Grade 5)	**Middle Level (Assessment at Grade 8)**	**High School (Assessment at Grade 11)**
	• Structure and function of the reproductive system	• Processes of human reproduction and development through the life cycles; conception through birth; childhood; adolescence; and adulthood
	• Physiological changes which occur during adolescence	• Risks of being sexually active and strategies for delaying sexual activity and protecting physical and emotional health

Core Content for Practical Living Assessment

Academic Expectation 2.30: Students evaluate consumer products and services and make effective consumer decisions.

The wide array of products and services available, coupled with the degree and sophistication of advertising, make appropriate consumer selections difficult. Consumer skills are essential for making effective consumer decisions. Drawing appropriate conclusions for managing personal needs and resources are also significant to consumerism. Consumer decisions extend beyond self and can impact the environment.

Accessing and assessing consumer information; comparing and evaluating products and services; and critiquing advertisements are necessary for making effective consumer decisions.

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
• Differences between needs and wants	• Comparison of needs vs wants in relation to consumer decisions	
• Product comparison by price, features, quality	• Product comparison by price, quality, and availability	• Strategies and techniques for evaluating various forms of consumer information including products, contracts, leases, and warranties
	• Influences (e.g., peer pressure, advertisements, desire for status) on consumer choices of adolescents	• Influences (societal pressures, advertisements, desire for status) on consumer choices of adults
	• Positive and negative aspects of advertising; strategies used by advertisers (e.g., use of misleading/ false information and gimmicks)	• Methods and techniques of advertising and their influences on consumer choices for products and services (e.g., health care products, health care services, attorney services)
	• Environmental considerations when making consumer decisions	• Short- and long- term impact of consumer decisions on the environment

As consumers, people must learn to determine their personal needs and manage their resources.

• Planning and saving for specific purchases	• Budgeting procedures for achieving short-term goals	• Financial management to achieve short-term and long-term goals

Core Content for Practical Living Assessment

Academic Expectation 2.31: Students demonstrate the knowledge and skills they need to remain physically healthy and to accept responsibility for their own physical well-being.

Half of all the deaths in America can be attributed to factors which we, individually and as a society, can control. Primary to remaining physically healthy and accepting responsibility for personal physical wellness is to possess the knowledge and skills needed to make choices which promote health and prevent disease. There is a strong relationship between behavioral choices and habits and a healthy functioning body.

<table>
<tr><th>Elementary (Assessment at Grade 5)</th><th>Middle Level (Assessment at Grade 8)</th><th>High School (Assessment at Grade 11)</th></tr>
<tr><td colspan="3">Behavioral choices/habits contribute to the promotion of an individual's physical health, the prevention of illnesses/diseases, and the ability to remain mentally and emotionally healthy. This concept is closely connected to Academic Expectation 2.32.</td></tr>
<tr><td>• Impact of diet, exercise, and rest on keeping major body organs (e.g., heart lungs, brain, stomach, skin) healthy</td><td>• How diet, exercise, rest, and other choices affect body systems and the way they work together to maintain health</td><td>• Decisions which promote health and prevent illness, diseases, and injuries (e.g., colds, cancer, heart disease, automobile crashes)</td></tr>
<tr><td>• Health habits which affect self and others (e.g., hand washing, brushing and flossing teeth, bathing, toilet habits, rest and exercise) and other ways of preventing spread of infectious diseases</td><td>• Transmission and prevention of communicable (e.g., hepatitis, colds, influenza, mononucleosis, TB, AIDS/HIV/STDs)</td><td>• Characteristics, symptoms, causes, patterns of transmission, and prevention of communicable diseases, including HIV/AIDS/STDs (with an emphasis on abstinence)</td></tr>
<tr><td>• Strategies to promote good health and prevent disease (e.g., diet, exercise, rest)</td><td>• Noncommunicable diseases among adolescents (e.g., diabetes, cancer, asthma)</td><td>• Noncommunicable diseases among adults (e.g., high blood pressure, heart disease, arthritis, osteoporosis)</td></tr>
<tr><td></td><td>• Health habits and behaviors of adolescents which affect physical and emotional health (e.g., substance use/abuse, dietary and exercise habits, sexual activity)</td><td>• Impact of diseases/illness on social, political, economic systems (e.g., cost of treatment versus prevention, absence from work)</td></tr>
<tr><td colspan="3">Nutritious foods are necessary for growth, development, and maintenance of healthy bodies.</td></tr>
<tr><td>• Role of nutritious food to the growth of healthy bodies</td><td>• Nutrients needed for proper growth and development</td><td>• Functions of nutrients in maintaining and promoting health</td></tr>
<tr><td>• Food Guide Pyramid: food items found in each level</td><td>• Use of dietary guidelines, Food Pyramid, and other nutrition resources in making daily food choices</td><td>• Dietary guidelines for making food choices and exchanges/substitutions for special needs (e.g., diabetes, weight control)</td></tr>
</table>

Core Content for Practical Living Assessment

Continued

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
• Nutritious snack choices	• Impact of exercise and nutritional practices on the ways adolescents look, feel, and perform	• Nutrition and exercise plans for lifetime physical and emotional health and fitness

The benefits of exercise and fitness to health go beyond weight control.
This concept is closely connected to Academic Expectations 2.34 and 2.35

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
• Body changes which occur during physical activity	• Body changes following regular participation in physical activity	• Physiological changes and their impact on performance of physical activities
• Benefits of exercise	• Benefits of exercise and fitness to physical development	• Physical principles (e.g., frequency, intensity, time/duration) of exercise and fitness as related to physical development
	• Self-assessment (e.g., strength, flexibility, cardiovascular endurance, body composition) of health status	• Strategies for improving and monitoring health-related fitness (e.g., strength, cardiovascular endurance, flexibility, body composition)

A major cause of injury and death to children and adolescents is accidents.

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
• Health and safety hazards at home, school, and play (e.g., electrical, household products, horseplay)	• Health and safety hazards encountered by adolescents (e.g., hazardous waste, explosives, firearms	
• Safe traffic/transportation practices (e.g., crossing street; wearing protective gear when roller blading, skateboarding, bicycling) practices	• Traffic/transportation related safety (e.g., wear seat belt, consider condition of driver and driving conditions)	• Responsible use of motor vehicles (e.g., obeying laws regarding drinking, speeding, and other safe driving practices)
• Potential unsafe/threatening situations and procedures for dealing with them (e.g., when to say "no")	• Strategies to maintain personal security in risk situations (e.g., violence, kidnapping)	• Strategies for effectively managing risky/ compromising situations.
• Procedures for obtaining needed emergency assistance (e.g., 911) and information	• Basic steps to follow when responding to a variety of life threatening emergencies (e. g., choking, shock, poisoning, burns, and heat-related emergencies)	• Procedures (CPR and basic First Aid) for dealing with emergency situations (e.g., overdose, drowning, car accident)

Core Content for Practical Living Assessment

Academic Expectation 2.32: Students demonstrate strategies for becoming and remaining mentally and emotionally healthy.

The degree of mental and emotional wellness that individuals possess influences the extent to which they work effectively, contribute to the family and society, and experience personal satisfaction and happiness. Emotional disorder expresses itself in a number of ways which are often destructive to physical health; addictions, stress, violence, and/or eating disorders are manifestations of an unhealthy emotional state.

Behavioral choices/habits contribute to mental and emotional health and the promotion of physical health.
This concept is closely connected to Academic Expectation 2.31.

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
• Behavioral choices result in positive or negative consequences	• Nature (e.g., symptoms, causes, treatment) of mental illness (e.g., depression, anxiety)	• Nature (e.g., symptoms, prevention, progression, treatment) and effects of mental illnesses (e.g., depression, bipolar disorders, schizophrenia) on individuals and society
• Purpose and proper use of medications	• Nature of emotional disorders (e.g., eating disorders; addictive behaviors)	• Nature and effects of emotional disorders (e.g., drug abuse and addiction, eating disorders, violence) on individuals and society
• Risks of nonmedicinal drugs (e.g., tobacco, alcohol, marijuana, inhalants)	• Consequences and risks of behavioral choices (e.g., tobacco, alcohol, and other drug use; sexual involvement; violent behaviors) and alternatives to situations faced by adolescents	• Behavioral choices (e.g., tobacco, alcohol, and other drugs; sexual involvement; accidents; aggressive behaviors) faced by adults: consequences, risks, and alternatives
	• Resources (e.g., guidance counselor, drug counselor) and treatment of drug addition	• Intervention (cease enabling, suggest treatment) and treatment (e.g., AA, outpatient therapy, group therapy)
	• Effects of eating disorders; need for counseling and healthy body image	• Prevention (e.g., promote healthy body image, build skills for success) and treatment (e.g., counseling) of common eating disorders

Core Content for Practical Living Assessment

Continued

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
	People often need established strategies for remaining mentally and emotionally healthy. Application of these strategies also affects physical wellness. This concept is closely connected to Academic Expectation 2.31	
	• Strategies (e.g., assertiveness, refusal skills) for dealing with peer pressure	• Strategies for dealing with peer pressure and managing stress (e.g., exercise)
		• Relationship between stress and physical, mental, and emotional health
	• Strategies for managing stressful situations (e.g., test taking, deadlines)	• Use of refusal skills when dealing with pressure from friends/peers/colleagues in order to stay healthy
	• Strategies for preventing violence	
	• Steps in the decision-making process	• Criteria for effective decision-making
	• Use of strategies (e.g., goal-setting, time management, decision-making process) to promote mental and emotional health	• Use of strategies (e.g., time and task management, planning, decision making, perseverance, self encouragement) for building success

Core Content for Practical Living Assessment

Academic Expectation 2.33: Students demonstrate the skills to evaluate and use services and resources available in their community.

Community services and resources, including community health systems, have an important role in maintaining, promoting, and improving the health of people in a geographical area. Epidemics, as well as the general spread of disease, caused governments to establish standards and regulations to protect the health of individuals. Non-profit health agencies also advocate, usually through education and research, for the social, environmental, and physical health status of their communities.

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
People rely on services and resources provided through private, public, and voluntary agencies.		
• Community agencies providing health and safety services, such as -Health Department -Voluntary Health Organizations -Fire Department -Police Department	• Kinds of services and resources available in the communities (e.g., public health department, voluntary health organizations, hospital)	• Roles and responsibilities of community health systems (e.g., HMOs, PPOs, public, private) and services (e.g., public health, medical and dental treatment facilities)
• Community guidelines that promote healthy living environments (e.g., animal control, sanitation, immunization)	• Relationship of governmental standards (e.g., restaurant inspections, OSHA, water quality) to health and safety	• Standards and regulations (e.g., water quality, restaurant inspections, immunizations) pertinent to community services and resources which are designed to protect the health and safety of citizens
	• Role of individuals and society in preserving resources	• Role of individuals and society in protecting the environment and preserving resources

Core Content for Practical Living Assessment

Academic Expectation 2.34: (Psychomotor Skills) Students perform physical movement skills effectively in a variety of settings.

Cognitive development is directly related to physical development. For example, there are studies which show that babies who do not crawl frequently have reading difficulties later. Yet, cognitive information can be used to understand and enhance the development of motor skills such as movement sequences and patterns. Individuals who understand their bodies and how they perform various movements will be safer, more productive in recreation and work activities.

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
Development of psychomotor skills contributes to the development of social and cognitive skills.		
• Technique for enhancing motor skills development -locomotor: walking, running, skipping, hopping, galloping, sliding, leaping, jumping -nonlocomotor: turning, twisting, swinging, swaying	• Principles of motor skills refinement (e.g., accuracy, technique, physics)	• Principles (e.g., accuracy, technique, physics) for learning and improving advanced motor skills
• Techniques for developing object manipulation skills (hitting, kicking, throwing, catching)	• Techniques for developing transitional motor skills (combination of locomotor, object manipulation, and movement concepts) for participation in rhythmic movement and individual/dual/team games and activities (e.g., baseball, soccer, dancing, basketball)	• Techniques for developing and refining specialized motor skills (combination of advanced motor skills, object manipulation, and movement concepts) for participation in intermediate/advanced rhythmic movements and individual/dual/team sports (e.g., football, basketball, soccer, tennis, volleyball)
• Movement concepts -body awareness (what the body is doing) -space awareness (where the body moves) -time (how quickly the body moves) -effort (how the body moves) -relationship (relationships that occur while the body moves)		
• How motor skills (locomotor, nonlocomotor) are evaluated	• Analysis of transitional (combination of locomotor, object manipulation, and movement concepts) movement sequences and patterns to evaluate performance and make recommendations for improvement	• Analysis of specialized (combination of advanced motor skills, object manipulation, and movement concepts) movement patterns and sequences to evaluate performance and make recommendations for improvement

Core Content for Practical Living Assessment

Academic Expectation 2.35: (Lifetime Physical Activities) Students demonstrate knowledge and skills that promote physical activity and involvement in physical activity throughout their lives.

Cognitive understandings develop from an initial awareness of cause and effect relationships between activity and its immediate and identifiable effects on the body. Gradually, active individuals acquire a deeper understanding of the role of meaningful activity on physical wellness, social opportunities and relationships, and emotional well-being. Thus, the ultimate goal is an early introduction to physical activity which encourages involvement in regular activity throughout one´s lifetime.

<table>
<tr><th>Elementary (Assessment at Grade 5)</th><th>Middle Level (Assessment at Grade 8)</th><th>High School (Assessment at Grade 11)</th></tr>
<tr><td colspan="3">Physical, mental, emotional, and social health is strengthened by regular involvement in physical activities.
This concept is closely connected to Academic Expectations 2.31 and 2.32.</td></tr>
<tr><td>• Physical benefits of participation in leisure/recreational and competitive physical activities</td><td>• Physical and social benefits of regular participation in leisure/recreational and competitive physical activities</td><td>• Physical, mental, emotional, and social benefits of regular participation in leisure/recreational and competitivephysical activities throughout life</td></tr>
<tr><td>• Basic rules for participating in simple games (e.g., tag, softball, 4-square) and activities (e.g., relays, 7-up, parachute)</td><td>• Offensive and defensive strategies in games and/or sports (e.g., basketball, soccer, baseball)</td><td>• Offensive and defensive strategies of play for a variety of games and/or sports (e.g., football, basketball, soccer, tennis, volleyball)</td></tr>
<tr><td>• Role of practice in improving performance</td><td>• Techniques (e.g., practice, self evaluation) to develop skills related to performance in games and/or sports</td><td>• Techniques (e.g., practice, peer/coach evaluation, individualized coaching session) to achieve consistency in performance in games and/or sports</td></tr>
<tr><td></td><td>• Principles of fitness training and conditioning (e.g., frequency, intensity, time/duration)</td><td>• Principles (frequency, intensity, time/duration) of fitness training and conditioning and its impact on abilities to participate in activities</td></tr>
<tr><td colspan="3">Rules of behavior, fair play, and cooperation enhance the quality of participation in games and activities and mental, emotional, and social health.
This concept is closely connected to Academic Expectation 2.32.</td></tr>
<tr><td>• Rules of behavior (sportsmanship) for spectators and participants during games/activities</td><td>• Rules and fair play for spectators and/or participants during games</td><td>• Rules, fair play, and cooperation for spectators and/or participants during organized games/sports</td></tr>
</table>

Core Content for Vocational Studies Assessment

Version 1.0

Core Content for Vocational Studies Assessment

The Core Content for Vocational Studies delineates the content for the three Academic Expectations, 2.36: Career Path, 2.37: Transition Skills, and 2.38: Post-Secondary Opportunities, providing further clarification regarding content that will be tested on the KIRIS assessment. This is content that students should know and be able to apply if they are to make successful transitions from school to career choices.

Vocational studies should not be confused with vocational education. The content in vocational studies addresses career education in a broad sense while the focus of vocational education programs is occupational-specific skills.

The presentation format on the following pages shows how concepts introduced in the primary years progress in difficulty and complexity through high school. The content bullets are aligned to show this progression; however, specific content is not always included at the elementary level because some topics are not appropriate for assessment at that level.

While assessment of certain content may not be appropriate at the elementary level, an awareness of the concepts should be developed as a foundation for the middle level. During the middle grades, content should lead to more application and investigation of the world of work. At the high school level, a more practical, direct relationship to the world of work and life should be present.

Core Content for Vocational Studies Assessment

Academic Expectation 2.36: Students use strategies for choosing and preparing for a career.

Awareness of careers starts in the primary grades and at the middle level more specific exploration experiences occur. The total experience through high school allows students to determine a career path which fits their interests, aptitude, and abilities, while providing strategies to prepare for a career.

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
Jobs/Careers reflect both individual and societal needs.		
• People work to have food, clothing, and shelter.	• People work to provide for their wants and needs and often for personal satisfaction.	• Career planning has an impact on future physical, mental, and emotional well-being.
• A career is a person's life work.	• Work is important to society because it provides necessary goods and services for individuals and groups.	• Work has social, political, and economic impacts on the family and society.
• Individuals can have different jobs in the home, school, and community.	• Job and career opportunities vary between and among communities and regions, based in part on available resources.	• Job and career opportunities vary at the state, national, and international levels based on available resources.
• A person may hold many different jobs before deciding on a career.	• New jobs and careers emerge and others are deleted due to needs of society.	• The job market changes as a result of scientific advancements and the increased use of technology.
Many factors need to be considered when selecting and preparing for a career path.		
• Individual interests are sometimes different from abilities.	• Interests, aptitudes, and abilities can be identified through a variety of means (e.g., formal assessment, trying new experiences).	• Short- and long-term career goals should be based on an individual's interests, abilities, aptitudes, and post-secondary opportunities.
	• A career path should match not only what a person likes and does well but also projected career goals.	• Various jobs and careers require different academic skills and levels of preparation.

Core Content for Vocational Studies Assessment

continued

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
	• Both printed (e.g., government publications, newspapers, magazines, brochures, textbooks) and human resources (e.g., personnel managers, school counselors, shadowing experiences) should be used for locating job and career information.	• The advantages and disadvantages of jobs and careers in various occupational areas should be evaluated (e.g., preparation, salary and benefits, demands of job, location, work environment).
	• There are various post-secondary options available after high school (e.g., technical or vocational school, community college, apprenticeships, military, college).	• A plan for transition to post-secondary opportunities should be based on career goals and academic strengths.

Core Content for Vocational Studies Assessment

Academic Expectation 2.37: Students demonstrate skills and work habits that lead to success in future schooling and work.

The basic skills, knowledge, and positive work habits for successful transition from school to post-secondary experiences and to life itself are addressed throughout a student's educational experience. However, the connections between success in the workplace and skills, knowledge, and work habits are emphasized at the high school level.

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
Good work habits impact success.		
• Positive work habits are important at school (e.g., good attendance, honesty, dependability, punctuality, courtesy).	• Opportunities for individual success are enhanced by identifying weak or negative work habits and developing a plan for improvement.	• Positive and negative work habits can result in different levels of success at school and in the workplace.
• Completing job responsibilities is important both at home and at school.	• Employers look for employees who have positive work habits and a good work ethic.	• The work habits and work ethic of an individual can impact the success of the group or organization.
Certain skills are needed for success in the work place.		
• Academic skills (e.g., reading, writing, speaking, math) are used both in the home and the workplace.	• Certain academic skills are important in specific jobs or careers (e.g., space and dimensionality in baseball, writing in journalism, science in medicine).	• Life long earning potential, job options, and job satisfaction are generally related to the amount and kind of educational training of the worker.
• Computers are used in many homes, schools, jobs, and careers, (e.g., supermarket scanners, library book checkouts, accounting systems).	• The use of various types of technology has increased and continues to change in the workplace. (e.g., word processing, Doppler radar in weather predictions, computer analysis of auto mechanics).	• Different jobs and careers (e.g., health field, manufacturing, agriculture) use a variety of technology types.
• Many tasks can be more efficiently completed when cooperative team skills are used.	• Both individual and team skills contribute to the successful completion of a task.	• The use of team skills (e.g., conflict resolution, cooperation, and communication) is important in today's workplace.

Core Content for Vocational Studies Assessment

Academic Expectation 2.38: Students demonstrate skills such as interviewing, writing resumes, and completing applications that are needed to be accepted into college or other post-secondary training or to get a job.

This expectation is more significant for high school students who are preparing for the transition to the work of work. However, many aspects of learning to market oneself need to begin earlier with an awareness at the elementary level and practice at the middle level.

Elementary (Assessment at Grade 5)	Middle Level (Assessment at Grade 8)	High School (Assessment at Grade 11)
	Special skills are needed as post-secondary opportunities are sought.	
	• A resume'is a summary of a person's educational background, job experiences, and qualifications. This can be an important component in a portfolio.	• A completed career portfolio should include the following: - a resume' - letters of reference - certifications of training - samples of work
	• The following communication skills are needed when seeking a job/career: - Business letter writing - Non-verbal skills (e.g., body language, facial expressions, posture, dress) - Verbal skills - Interview skills (e.g., friendly greeting, maintain eye contact, show enthusiasm about the job, respond positively and honestly, plan questions to ask, listen carefully, and thank interviewer)	• The following skills are needed for seeking jobs/careers and post-secondary opportunities: - writing a letter of application - completing an application - securing a letter of reference - preparing a resume' - knowing interview techniques -- learn about employer/job -- make a list of questions to ask -- prepare materials to take -- think about questions you will be ask -- practice interview - writing a follow-up letter - developing a letter of resignation